MABALACAT CITY COLLEGE

INSTITUTE OF ARTS AND SCIENCES

First Semester A.Y. 2023-2024

Outcome-Based Teaching and Learning Plan and Module Guide for *(General Ecology-FUNCORE 105)*

VISION: Mabalacat City College envisions itself to be the top choice in the community it serves for quality education and training by 2025.	**MISSION:** The Mission of Mabalacat City College is to meet the needs of its community as a center for learning aiming for open admission policy.

COURSE DESCRIPTION:

General Ecology is an introductory course on the biology and properties of ecological systems. It deals with the general concepts and principles pertaining to the complex pattern of interactions between the physical environment and the communities of the Earth. Focused on the methodologies pertaining to population and community structure and the assessment of environmental quality. Laboratory experiments are given as inquiry-based activities as a strategy in developing higher-order thinking skills and to supplement the content topics in the lecture.

PROGRAM INTENDED LEARNING OUTCOMES (PILO) (BASED ON CMO):

1. Develop an in-depth understanding of the basic principles governing the science of life;
2. Utilize techniques/procedures relevant to biological research work in laboratory or field settings;
3. Apply basic mathematical and statistical computations and use of appropriate technologies in the analysis of biological data;
4. Extend knowledge and critically assess current views and theories in various areas of the biological sciences.

PRE-REQUISITE: **FUNCORE 101 and 102**

MABALACAT CITY COLLEGE

INSTITUTE OF ARTS AND SCIENCES

First Semester A.Y. 2023-2024

Outcome-Based Teaching and Learning Plan and Module Guide for *(General Ecology-FUNCORE 105)*

NUMBER OF UNITS: **3 Units Lecture and 2 Units Laboratory**

COURSE INTENDED LEARNING OUTCOMES:

1. Familiarize students with the basic vocabulary associated with the study of Ecology.
2. Deliver students with a tool that will allow students to describe and understand the relationships between the two main components of an ecosystem.
3. Provide an opportunity for students to understand the relationship between the concepts of biodiversity and interrelatedness.
4. Provide students with a mechanism to describe and understand the impacts of changes that can occur within an ecosystem
5. Apply the concepts of Ecology to the community of Mabalacat City.

COURSE OUTLINE

Outcome-Based Teaching and Learning Plan and Module Guide for *(General Ecology-FUNCORE 105)*

Week	Topic	Learning Materials (with references following OER plagiarism and IPR policies)	Intended Learning Outcomes (ILO)	Assessment Tasks (Requirements with schedule or time allotment)	Sustainable Development Goals (SDG) Coherence
		GLOBAL KNOWLEDGE			
1-2	Introduction to Ecology Natural History: Life on Land Preparation to Research in Ecology	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. Will be provided by the Instructor **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://bio.libretexts.org/Bookshelves/Introductory_and_General_Biology/Book%3A_General_Biology_(Boundless)/44%3A_Ecology_and_the_Biosphere/44.01%3A_The_Scope_of_Ecology/44.1A%3A_Introduction_to_Ecology#:~:text=and%20its%20environment-,An%20Introduction%20to%20Ecology,population%2C%20community%2C%20and%20ecosystem. **Suggested Online Videos:** https://www.youtube.com/watch?v=izRvPaAWgyw&t=181s	Discuss the the rudimentary concepts of ecology and the life history. Explicit the foundation of ecological research.	In-situ activity for the students Essay work. Scoring rubric will be given to the students. 60 minutes Due date: September 25-30, 2023	SDG Nos. SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
	Life in Water	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes.	Explain the concepts of life in water, vis-a-vis the River Restoration Porject.	Short-Answer Essay.	SDG Nos.

	Individual Ecology: Temperature relations Monitoring site characteristics	**PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.individualecology.com/overview/#:~:text=Individual%2Dbased%20ecology,energy%20at%20the%20fastest%20rate. **Suggested Online Video:** Microbial Metabolism https://www.youtube.com/watch?v=whBOdeMIBKo	Elaborate the methods, protocols used in study area monitoring.	60 minutes. Scoring rubric will be given to the students. *In-situ* Activity in Sapang Balen Due Date: October 9-14, 2023	SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
5-6	Water Relations Social Relations Sampling Static Organism Sampling Mobile Organism (Reporting)	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.onlinemswprograms.com/social-work/what-is-social-ecology/#:~:text=Introduction%20to%20Social%20Ecology,the%20environment%20as%20a%20whole. **Suggested Online Videos:** https://www.youtube.com/watch?v=rxYTInBQUtc	Elucidate the concept of Water relations in environment, and the social relationship of different biotic and abiotic factors. Investigate the importance of sampling strategies in static organisms via *in situ.*	Essay work. Scoring rubric will be given to the students. 60 minutes Due date: October 2-7, 2022	SDG Nos. SDG 3: Good Health and Wellbeing SDG 13: Climate Action SDG 14: Life Below Water

					SDG 15: Life on Land
7	Population Ecology - Genetics and Natural Selection	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.nature.com/scitable/knowledge/population-ecology-13228167/#:~:text=Population%20ecology%20is%20the%20study,%2C%20and%20dynamics%2C%20or%20demography. **Suggested Online Videos:** Metabolic Regulation https://www.youtube.com/watch?v=RBOsqmBQBQk	Explain the concept of population ecology and how genetics and natural selection affects the survival of the population.	problem-solving work. 120 minutes Scoring rubric will be given to the students. Due Date: October 16-21, 2023	SDG Nos. SDG 3: Good Health and Wellbeing SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
NATIONAL KNOWLEDGE					
8	Population Distribution and Abundance, Dynamics, Growth	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic	Familiarize the concepts of population distribution, abundance, dynamics and growth.	Essay work. Scoring rubric will be given to the students.	SDG Nos. SDG 3: Good

		Suggested Web Readings: https://schoolworkhelper.net/ecology-population-distribution-and-abundance/ **Suggested Online Videos:** Viruses https://www.youtube.com/watch?v=PQ-CQ3CQE3g		60 minutes Due date: October 23-28, 2023	Health and Wellbeing SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
MIDTERM EXAM					
9-10	Life History Interactions - Competition Exploitative Interactions	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.nature.com/scitable/knowledge/library/species-interactions-and-competition-102131429/#:~:text=Exploitation%20competition%20occurs%20when%20individuals,amount%20available%20for%20other%20individuals. **Suggested Online Videos:** https://www.youtube.com/watch?v=LmUoC_VFmg8	Explicit the life history of organisms.. Enumerate the iterations-competitions among the selected organisms.	Scoring rubric will be given to the students. Due Date: November 27, 2023	SDG Nos. SDG 3: Good Health and Wellbeing SDG 6: Clean Water and Sanitation

					SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
11-12	Symbiosis	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.youtube.com/watch?v=eChtyqSqUIs **Suggested Online Videos:** Microbial Evolution https://www.britannica.com/science/symbiosis#:~:text=symbiosis%2C%20any%20of%20several%20living,the%20members%20are%20called%20symbionts .	Familiarize the different types of symbiotic relationships like, mutualism, parasitism, commensalism, predation, and ammensalism. .	*In situ* observation of different symbiosis at Sapang Balen Scoring rubric will be given to the students. Due Date: December 4-9, 2023	SDG Nos. SDG 3: Good Health and Wellbeing SDG 6: Clean Water and Sanitation SDG 13: Climate Action

					SDG 14: Life Below Water SDG 15: Life on Land
LOCAL KNOWLEDGE					
13-14	Species Interactions and Community Structure Energy Flow Nutrient Cycling and Retention	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://www.globalchange.umich.edu/globalchange1/current/lectures/ecol_com/ecol_com.html#:~:text=Summary,can%20have%20far%2Dreaching%20effects. **Suggested Online Videos:** Diversity of bacteria and Archea https://www.youtube.com/watch?v=NtCzZQmK9pQ \	Discuss the diversity of bacteria and archaea in terms of metabolism, morphology and nitrogen cycle. Differentiate the characters present in eukaryotic microorganisms such as protist, fungi, and algae.	Formulation of the Species interaction and community structure of the Sapang Balen. Scoring rubric will be given to the students. Due Date: December 11-16, 2023	SDG Nos. SDG 3: Good Health and Wellbeing SDG 6: Clean Water and Sanitation SDG 9: Industry, Innovation, and Infrastructure

					SDG 11: Sustainable Cities and Communities SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
15	Succession and Stability	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://ecology.lifescience.ntu.edu.tw/old/course_932_ecology/Chapter20.pdf **Suggested Online Videos:** https://www.youtube.com/watch?v=6IgUjGEJ4Pw	Discuss the process of succession and environment stability.	Household/ Laboratory activities Laboratory Report. 120 minutes	SDG 3: Good Health and Wellbeing SDG 6: Clean Water and Sanitation

				Scoring rubric will be given to the students. Due Date: December 18-19, 2023	SDG 9: Industry, Innovation, and Infrastructure SDG 11: Sustainable Cities and Communities
16-17	Large-Scale Ecology	**Lecture Notes:** PDF/Word format lectures that can be read for approximately 30-60 minutes. Mandigan, M.T., Martinko, J.M., Bender, K.S., Buckely, D.H., & Stahl, D.A. (2015). *Brock Biology of Microorganisms (14th ed, pp.86-95)*. Pearson. ISBN 978-0-321-89739-8. **PowerPoint Presentation**: 30-60 minutes approximately for each subtopic **Suggested Web Readings:** https://besjournals.onlinelibrary.wiley.com/doi/full/10.1046/j.1365-2664.2000.00560.x **Suggested Online Videos:**	Familiarize and Understand the concepts of large-scale ecology and their importance to the biosphere.	*In-situ* observation of Large scale ecology in Sapang Balen Scoring rubric will be given to the students. Due Date: January 3-6, 2023	SDG 3: Good Health and Wellbeing SDG 6: Clean Water and Sanitation SDG 9: Industry, Innovation, and

		https://www.youtube.com/watch?v=JrJ1t-A_an8			Infrastructure SDG 11: Sustainable Cities and Communities SDG 13: Climate Action SDG 14: Life Below Water SDG 15: Life on Land
FINAL EXAM/ OUTPUT					

SUMMARY OF REVISIONS: SDGs were incorporated in the weekly topics.

Revision	Date	Updated by	Short Description of Changes
1.0	August, 2022	Frienchie Ann B. Yamauchi	Enhancing the Topics related to the needs of the community.
2.0	August, 2023	Glen S. Nolasco, MSc.	Incorporated the related SDGs and alignment of the topics to the community and target of the Institution

GENERAL GUIDELINES AND POLICIES:

As the College currently follows Hybrid Delivery of Learning on its instruction, the following general guidelines and policies are set by the School to be followed by the faculty-in-charge and the students of the course.

Attendance

Checking of attendance during face-to-face classes is a requirement and will be strictly observed.

Academic Integrity

Observance of the outmost academic integrity shall be observed by the students of the course. Plagiarism, cheating, and other

forms of academic dishonesty shall not be tolerated by the faculty-in-charge nor the Institute.

Accomplishment of Requirements
All requirements given by the instructor/faculty-in-charge of the course to the students shall be called/referred to/addressed as "work output". Each work output must be accomplished by the students until the schedule set by the instructor/faculty-in-charge. Final student's output must also be accomplished by the schedule set by the instructor of the course.

Line of Communication

The course's official line of communication shall be through the following:

The outmost respect and courtesy must be observed by students in communicating to their instructor/faculty-in-charge of the course and to their classmates and vice versa. Any form of disrespectful and discourteous way of communication shall not be tolerated by the School.

Instructional Materials (IMs)

Working students may avail of the modular type of teaching. MS Teams on-line platform may be utilized by the instructor/faculty-in-charge of the course to the students – adapting the flexible learning scheme.

Grading System:

Midterm	**50%**	**Attendance/Quizzes/Assignment/Projects/Exam (60%)**
		Laboratory Activity and Reports (40%)
Final	**50%**	**Attendance/Quizzes/Assignment/Projects/Exam (60%)**
		Laboratory Activity and Reports (40%)

Total: 100%

References:

Books

Brower, J. E., Zar, J. H., & Von Ende, C. N. (1998). *Field and laboratory methods for general ecology* (Vol. 4). Boston: WCB McGraw-Hill.

Weiner, J. (1995). On the practice of ecology. *Journal of Ecology*, *83*(1), 153-158.

Jorgensen, S. E., & Fath, B. D. (2008). *Encyclopedia of ecology*. Elsevier BV.

Hawley, A. H. (2017). Ecology and human ecology. In *Social, Ecological and Environmental Theories of Crime* (pp. 59-66). Routledge.

Prepared by: Reviewed by: cc: Cf:

MABALACAT CITY COLLEGE

INSTITUTE OF ARTS AND SCIENCES

First Semester A.Y. 2023-2024

Outcome-Based Teaching and Learning Plan and Module Guide for *(General Ecology-FUNCORE 105)*

Glen S. Nolasco
Instructor I

Marilyn S. Arcilla, RN, MAN
IAS-Dean

Romeo D. Erese III, LPT, Ph.D.
AVP for Academic Affairs