DEPARTAMENTO DE CIÊNCIAS DA VIDA

Assessment Cover Sheet and Feedback Form 2023-24

Module Code:	Module Title:	Module Team:
02049602	Evolutionary Biogeography and Spatial Modelling	Susana Rodríguez Echeverría, Luis Cunha, Cláudia Norte, Vitor Paiva
Assessment Title and Tasks: Lab Report 1		Assessment No. 2
Date Set: **27-Fev-24**	Submission Date: **16-Mar-24**	Return Date: **01-Apr-24**

IT IS YOUR RESPONSIBILITY TO KEEP RECORDS OF ALL WORK SUBMITTED

Marking and Assessment

This assignment will be marked out of 100% (= 20)

This assignment contributes to 25% of the total module marks.

Assessment Task:

Produce a laboratory report recording the work carried out analysing earthworm DNA from tissue samples earthworms collected in vegetation fragments in the city of Coimbra (Portugal).

Word limit: 1,500 + 10% (limit)

The report should include:

Title: You can use the title of the practical class, or you find your own title (**preferred; and an opportunity to be creative**). It should be concise, informative. It should not be longer than **130 letters**.

Introduction (limit of 400 words): Start with wider context, end with specific aims. Here you provide background information about the theme of your experiment. You use this information to lead the reader to your research question. In other word, you explain what is known. Then you explain what kind of information is lacking or important to explore and finally, you explain what you want to do (aims/hypotheses must be at the end of this section). For your report, I do not want to read the purpose of this exercise was the exercise or an assessment. Explain the purpose of the measurements and a possible application.

Methods and Materials: Comprehensive – allows repetition of your work. No need to type out manufacturer's instructions (you need to be concise). Here you explain as precise as possible **how you have conducted your experiment**, etc. Quite often, this section is written in passive voice. The aim is that the reader takes your method description and can repeat your experiment. The production of reliable and reproducible data is the main issue for scientific experiments, and this is given with this section. Therefore, you need to be honest and accurate. Do not use informal language, be as technical/scientific as possible. If you have any doubts, read papers related to the area of the research.
Nevertheless, keep it as short as possible. You can use subheadings if necessary. Describe your data analysis and software you have used.

Results: In a very concise, precise writing, you describe the results (using again different sections/subheadings as convenient). You need to provide the results of your bioinformatic analysis (haplotype richness, pairwise distances, phylogenetic tree, species rarefaction curves etc.).

Keep in mind that a figure should be self-explanatory. ("Figure 1." As a caption is not enough!). Do not replicate numbers in tables and figures (either-or). Tables have a heading, and figures have a description. Define the structure of the text in a logical order. The reader should know what was going on if he/she only has a look at the figures and reads the figure description. Important: do not interpret your results, leave that for the discussion sections and try to keep it short and accurate.

Discussion: The intention of this section is the interpretation of the results. In the introduction, you explain what is known, what is missing and what you want to elucidate. In the discussion, you explain what you have found and how this confirms or not the existing literature. You then need to discuss your results with the existing literature (e.g. why you have a different result?; why your result is the perfect explanation?; why everything was different from expected?).

You can use existing literature (good old papers can be useful, do not be reluctant about paper age if you think it is important for your discussion context). The discussion is not a list of things you would change in a second approach, nevertheless, if you see methodological weaknesses - mention it but explain their effect on the results with the help of scientific literature or a conclusive, logical explanation. Avoid a list of arguments. The intention here is to develop a logical explanation of the results and a discussion of possible influential factors. Always, try to include some suggestions regarding how your experiment could be improved and any questions that can be further explored.

References: Include a complete list of the supporting literature you have used. There are numerous different styles, but I recommend that you use Harvard style, be consistent throughout your report (you are expected to use literature beyond what is provided in the class). Feel free to use reference managing software (e.g., Mendeley, Zotero, Qiqqa, Endnote, etc.).

At last: It is a short report, keep it short and precise. Use the advantage of online submission, include figures and photos, and use colours.

Learning Outcomes to be assessed (check the lecture slides):

- Be able **to define genetic diversity** and explain its significance in the context of evolution, conservation, and ecosystem resilience;

• Understand the **biological mechanisms that contribute to genetic diversity**, including mutation, recombination, gene flow, and the role of sexual reproduction. • Learn about **various types of molecular markers** (e.g., mitochondrial genes) and their applications in studying genetic diversity, population assessment, and phylogenetics.

Marking Scheme:

	<8	8-10	10-13	13-15	15-18	18-20
General Content (BI2S111) 15%	☐ No relevant content presented. No effort into engaging with the task	☐ Very little content presented, very little effort engaging with the task. Clearly, no real attempts to prepare the report and the associated analytical approach	☐ Most of the required content is absent, and the document is mostly irrelevant or inappropriate content throughout. Several errors in the information provided. No attempt to separate information into appropriate sections	☐ Some of the information included is relevant, but important sections are omitted. Occasional errors in the information provided, which is not subdivided into clear sections	☐ Most required content included and appropriately subdivided in sections. Some content may be irrelevant or not appropriate for the academic audience. Few errors in the information provided. Information is provided in appropriate subsections	☐ All required content included in sufficient and clear detail. Information included in logical subsections. Content is relevant, appropriate for the audience and the information provided is correct
Introduction (BI2S111) 15%	☐ Hardly anything present. Some relevant phrases	☐ Introduction contains very little background information. No references. Introduction does not state the hypothesis or purpose of the experiment	☐ Introduction contains very little background information. No or poor references. Hypothesis or purpose of the experiment is in the introduction, but may or may not be clear	☐ Background information is not completely sufficient, or is too verbose (does not focus on justifying the experiment), and/or background information seems disconnected from the experiment, but the hypothesis or purpose of the experiment is clearly stated. Irrelevant content included. References are used but may be not of high quality and not entirely relevant. Alternatively, background information is sufficient but the purpose or hypothesis is not clearly stated	☐ Gives sufficient background such that an educated reader can understand the reason for performing the experiment. Connects the experimental goals or methods to previous literature. Clearly states the purpose of the experiment. Relevant references are present. References are from reputable sources	☐ Excellent background information which is relevant to the experiment. References used are recent and/or relevant and may contain some key stone primary research papers. The purpose of the experiment is clear
Material & Methods (BI2S111) 10%	☐ No material and methods are present and/or	☐ Material and methods are very limited. Information in this	☐ Information is present but there are important omissions. The	☐ Most information is present but some	☐ All the information is present (the text is clear	☐ All information is present and professionally presented in for

	with major omissions	section is very limited. Overall the information is not sufficient to repeat the experiment	experiment cannot be repeated with this information	important details are missing and/or irrelevant details are present. The experiment can almost be repeated	and neat). The experiment can be repeated with this information. Some irrelevant information may be present	both material and methods. The description is very complete and is accurate. The information is concise but sufficient to repeat the experiment
Results (BI2S111) 15%	☐ Very little information is present	☐ A significant part of the results are missing, figures are missing and most of the results are not described	☐ The results are not sufficiently described to the reader. Figures may be present. Legends and labelling may be omitted. Some smaller results may be missing. Speculation or discussion may be present. Data analysis is present but not fully explored	☐ The experiments are not fully explained or legends are not present or do not contain enough information. Results are described. Some discussion may be present. Proper analytical approach was employed but could be better explored	☐ The experiments are explained to the reader. Figures are labelled and figure legends are present. No drawing of conclusions or discussion is obvious. Analytical approach is provided and results are coherent with the graphics presented	☐ The experiments are clearly explained to the reader. Results are fully explained in a professional way. Figures are labelled and detailed figure legends are present. No drawing of conclusions or discussion is present. Analytical approach was employed flawlessly, graphics/tables are coherent and clear
Discussion (BI2S111) 15%	☐ Discussion is missing or very limited	☐ Interpretation of results is not clearly explained. No conclusions are made based on the results	☐ Provides some interpretation of results. Includes some sort of conclusions	☐ Provides meaningful interpretation of results. Provides some reasoning for negative or unexpected results if appropriate. Conclusion paragraph may be present. Some references are present	☐ Provides meaningful interpretation of results. Provides scientific reasoning for unexpected or negative results if appropriate. Includes a conclusion paragraph. Draws appropriate conclusions based on the data that are not overly broad. Several good references are present	☐ Provides meaningful interpretation of results. Provides scientific reasoning for unexpected or negative results if appropriate. Includes a conclusion paragraph. Draws appropriate conclusions based on the data that are not overly broad. The discussion is also linked to existing literature and is relevant to the introduction of the report. Excellent set of references is used
Language and Writing Style (BI2S111) 8%	☐ Language skills and writing style falls far below that required at this level, no attempt to tailor writing style to the task	☐ Language skills and writing style below that required at this level, no attempt to tailor writing style to the task	☐ Poorly written or confusing. Not pitched at the correct audience, being too basic for an expert/scientific audience. Basic ideas presented but not discussed in appropriate depth. Writing style lacks clarity and needs to be improved throughout. May	☐ Some confusing or poorly written sections, writing style could be improved in parts. Writing style is of a sufficient standard for an expert	☐ Mostly written clearly, with few exceptions. Appropriately written for the target academic audience, but improvements could be made in some	☐ Clearly written and correctly pitched at the level of the expected audience. Ideas described clearly in sufficient detail. Language used is correct and easy to follow with very few errors

			be difficult to comprehend	audience in places, but is too simplistic elsewhere	sections to describe ideas in sufficient detail and provide balanced and supported viewpoints. Language used it largely correct and clear, but some errors in places	
Layout and design (BI2S111) 8%	☐ No effort to make the coursework appealing to a reader e.g presented as a page of plain text	☐ Very little attempt in design and layout, which is very basic and not engaging	☐ Poor, unappealing design with little effort to make it eye-catching. All or a combination of no or little use of appropriate graphics, Inadequate font size, poor layout, basic layout, no effort in design	☐ A simple and basic design, with a few appropriate graphics included. Limitations may include having too much text, a cluttered layout, or distracting design	☐ A clear and mostly logical layout, which could be improved in places. Attractive design, with appropriate graphics but design and/or layout could be enhanced to improve the document and its clarity	☐ A very clear, logical and uncluttered layout. Eye-catching design. Relevant graphics enhance the document, with appropriate balance between text and images. The higher end of this bracket would present near professional quality graphic design and synthesis of original graphics or diagrams which enhance the clarity of the document
Diagrams/Figures/Illustrations (BI2S111) 8%	☐ No use of diagrams/illustrations	☐ Inappropriate use of diagrams/illustrations	☐ Satisfactory use of diagrams/illustrations	☐ Generally a good attempt, however some formatting issues or irrelevance is presented	☐ Clear effort made, perfectly formatted, however some errors or overly complicated presentation	☐ Correct and appropriate use of diagrams/illustrations, correctly referenced (if applicable) that directly assists the report
Further information and References (BI2S111) 6%	☐ No attempt made to include external material	☐ Some evidence of reading around the topic, but no attempt to refer to this material. If further material is used for interpretation and discussion, it appears to have been obtained entirely from non-peer reviewed sources	☐ No attempt to include references to appropriate further reading. Some evidence of further reading but not referenced appropriately or correctly. no evidence of understanding and little if any apparent attempt to source information from other sources for interpretation of results recognisable	☐ References included but formatting is incorrect or inconsistent. Reasonable evidence of research into the topic using external resources	☐ Appropriate reference list and links to further information but a few inconsistencies or errors in referencing style. Clear evidence of research using external sources	☐ Links to suitable sources of additional information and fully correct referencing style with no errors. Several good examples of research using relevant external resources