



BIO3110 PROJECT WORK IN BIOLOGY

GUIDELINES FOR ACADEMIC YEAR 2022 - 2023

VERSION: October 2022

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A. GENERAL INFORMATION

Code: BIO3110

Title: PROJECT WORK IN BIOLOGY

Credit Value 18 Credits

When Offered: Semesters 1 and 2

Tutors: Various, as indicated below

During their final year, students enrolled in the BSc Biology & Chemistry and BSc Biology degree courses are required to select a 'project' within one subject area. The project is one of the most important components of the BSc course as it is designed to integrate academic content with practice and to hone the skills that have been learned throughout the course by providing students with the opportunity to work on a real research question.

For the selected topic, students, under the guidance of their supervisors, will formulate a hypothesis or research question and will design experiments, observational protocols or other research procedures to collect data that address the research hypothesis/question; students will analyse the data, and draw appropriate conclusions and inferences through critical consideration of their results and the scientific literature. The work shall be presented as a report written in the format of a focused scientific dissertation.

The general objectives of this Project Work programme are:

- To provide the student with in-depth knowledge of some topic of their choice;
- To give the student experience in planning and carrying out scientific research and in critically evaluating the current literature on the particular topic.

Students are to note that this study-unit is compulsory and non-compensatable.

B. GUIDELINES FOR ASSESSMENT

1. The Project Work Programme in Biology consists of two components:

(i) Seminar: An advanced theoretical treatment of a specific topic through a seminar that each student is required to present to other students taking this study-unit and to the Board of Examiners for the student's project. This component carries 10% of the final assessment mark for BIO3110.

(ii) Project Work: A student project involving research work. This component will carry 90% of the final assessment mark. This project work will be assessed on the basis of a written dissertation, production of a poster and on performance during an interview.

2. The assessment criteria for the written dissertation include the following: level and depth of knowledge demonstrated in the seminar; originality and quality of dissertation; initiative shown by the student in the undertaking of his/her studies; quality of first draft of dissertation; aspects of presentation; as well as performance during the *viva voce* interview.

3. **Project Work in Biology BIO3110** carries 18 credits. The percentage total mark will be awarded as follows:

- 10% seminar
- 10% initiative shown during project work (to be awarded by respective tutor)
- 15% performance during interview
- 55% project (written dissertation)
- 10% poster

4. **The seminar programme** will be as follows:

- 4.1 Each student will be required to deliver a single seminar to the whole group of students who are following this study-unit.
- 4.2 Such seminars will be scheduled for a 2-hour session per week, usually during the period October to December. Each student will be required to deliver a 20 minute seminar followed by 10 minutes of discussion/questions.
- 4.3 The presentation shall consist of the student's appraisal of a general subject area related to that of the research project. Students should demonstrate their familiarity with the

literature of the subject area. The students should avoid referring to their specific project or their own results.

- 4.4 Attendance to seminars by students taking this study-unit is obligatory. As for other study-units, the final grade for BIO3110 will be issued only if the student's attendance to such seminars has been regular, and all other course requirements have been satisfied.
- 4.5 The Board of Examiners will examine the presentation on content and delivery as well as on the ability of student to defend his/her presentation during the seminar.
- 4.6 Students are to discuss the seminar title with their supervisors. If approved by the supervisor, the title and a single-page abstract are to be submitted by students through their respective supervisor to the Head of Department by the stipulated date (which will be communicated to the students). The title of each project will need to be approved by the respective Board of Examiners.

Some points about Powerpoint Presentations:

- Do not use fancy backgrounds
- Pay attention to the colour of text in relation to colour of background (white text on a yellow background does not show up well)
- Avoid fancy animation effects and transitions (you want to wow the audience with the academic content not the technology)
- Use a large font size and preferable arial
- Do not put too much in one slide (what cannot be read in a few seconds will not be read at all)

5. The poster should be produced in printed and electronic formats as per the following guidelines:

Posters must have a size that is equivalent to A1

Some tips for your poster:

- **Keep it simple and do not overcrowd the poster with text and images;**
- **Avoid black or vivid colors for the background, better use a pastel shade than a bright color;**
- **Use Arial, Futura or Verdana – they are much more legible from a distance than Times New Roman. Bold or shaded style is not recommended;**
- **Keep to a minimum of 20 point size for your text for maximum legibility. For headings, we suggest 70 to 80 pt size for the title and 50 to 60 pt size for the authors' names and affiliations underneath;**
- **Avoid stretching your text across the whole width of the poster – which is very difficult to read;**
- **Make sure that images in your poster are of high resolution.**

The poster will be set up for display in a designated area for assessment by the Board of Examiners. Following assessment, the poster will be retained by the Department for display during the Biology Annual Symposium, as well as in other venues as may be determined by the

Department. Students will also be required to submit an electronic copy of the poster to the department.

6. Students are expected to spend approximately 10 hours a week on their project work during their final year. Students are advised to prepare a detailed plan of their project at an early stage; this should include an appropriate time schedule taking into consideration:
 - a. the total time available for the project
 - b. the various stages of the project i.e. experimental work, writing up, etc

This will assist the student in managing their project time more efficiently and avoid panic and work congestion at the end when the pressure of examinations is also mounting.

Students should keep a project logbook in which details of all the work and activities related to the project are recorded. This should include notes/minutes of meetings held between the supervisor and the student. Keeping records on loose paper and on computers only, carries its risks!

Plan for contingencies! Power cuts do occur, as do hard disk malfunctions and a multitude of other problems especially if you are relying on technology. Give yourself time to recover from such problems! Printing the dissertation the night before the deadline (a very common practice) is not necessarily a very good idea. Always make backup copies of your files.

Appreciate that supervisors do have other commitments apart from a particular student's dissertation. To give a supervisor one or more chapters to read over the weekend a few days before your deadline is not fair on the supervisor!

Remember that supervisors do travel. Find out if your supervisor is going to be away during a crucial period of your elective and plan accordingly.

7. Three copies of the soft-bound dissertations will be submitted to the Department generally on the first Wednesday of May, unless instructed otherwise.
8. Candidates are required to scan their dissertation through 'Turnitin' by uploading their work to the appropriate link on the VLE. This should be done in consultation with the candidate's supervisor.
9. Interviews to assess the student projects will be held in June after the final examinations.
10. Students are reminded that the purpose of the interviews is to assess their mastery of the relevant topic. Try to remain calm and listen carefully to the questions asked. Assess carefully (and rapidly) what the examiners are seeking before you rush into answering. It is important to realize that in the limited time available the examiners are expecting direct concise answers to specific questions without any unnecessarily long introductions or other information of peripheral relevance. Remember that the examiners' job is to assess students, not to trap them or to fail them. They need to ask questions and probe if a poor answer is given. If you don't understand a question say so rather than try to fudge. If you disagree with an examiner, explain

your disagreement clearly: regard the examination as a scientific discussion not a debate or an interrogation!

C. PROJECT AREA DESCRIPTIONS

The topics available for the various Project Work Programmes in Biology may vary from year to year. Detailed descriptions, specific objectives and content of such programmes in Biology follow. In addition to the subject areas being offered by the Resident Academic Members of Staff of the department, there will be project areas offered by the Visiting Academic Members of Staff of the department. For more details, students are advised to contact the respective tutors.

D. GUIDELINES FOR PRESENTING THE DISSERTATION

The dissertation should have a strong biological content and, in the main it should be laboratory/field-based i.e. experimental in nature, although in exceptional cases it may be permissible for the work to be based on literature research.

DISSERTATION LENGTH: It is recommended that the dissertation will be concise and not be longer than **50 pages**; i.e. A4 sheets typed on one side using 1½ spacing **inclusive** of tables, figures, figure legends, acknowledgements and references. Longer write-ups up to a maximum length of 75 pages **are acceptable but not desirable**. If the candidate opts for a dissertation that exceeds 50 pages, he/she should discuss with the respective supervisor why such length was necessary. In such cases, during the VIVA examiners may ask the candidate for justification for exceeding the recommended length. **It is emphasized that 75 pages is the maximum allowable length. Candidates are reminded that the criteria against which dissertations will be marked include clarity, focus, conciseness and the ability to write succinctly in the style of scientific papers. In other words, it is quality rather than quantity that students should strive for.**

MARGINS: Left, 4 cm; top, bottom, and right, 2.5 cm. These are necessary to allow for binding and trimming. Do not punch holes in the margin even if intended as a soft-bound copy, since holes may present difficulties for binding.

Any appendices with **RAW DATA** should be provided on a CD, along with a digital version of the dissertation. The contents of the CD and the software needed to access it should be clearly indicated on the printed dissertation.

Font size for the main text should normally be 11 point 'Arial' or 12 point 'Times New Roman' (the latter will take slightly more space). If you need to vary this, the permission of your supervisor should be obtained. Titles and heading will require a slightly larger font. Sometimes legends for figures and tables may require a smaller font size to fit to page. It is not advisable to reduce the font size for tables and figures but should this be required, this should not be smaller than point 10.

A title page should include the full title, the candidate's name, the course [BSc (Hons)] and year of

presentation and candidate's supervisor. It should also specify that "This dissertation is presented in part fulfilment of the requirements for the B.Sc. (Hons.) degree in the Faculty of Science". A template is attached as an appendix to this document. Note which items are in upper and lower case and the approximate size of the print.

Three copies of the dissertation should be submitted, one of which will be returned to the student, one to be retained by the supervisor and one retained in the Departmental library. If there is an Additional Supervisor, and extra copy for such must also be presented. The dissertation must also be submitted in electronic format.

The first submission should be soft-bound. Following the *viva voce* examination and the incorporation of any recommended changes, all copies should be bound in black boards with the dissertation title, student's name, course and year shown on the front and on the spine.

The **first soft bound submission** should include:

- (i) A **declaration of authenticity** to be signed by the candidate. Such statement should read as follows:

I, the undersigned, declare that this dissertation is my own original work, except as acknowledged in the text, and that it was carried out under the supervision of XXXXXX and XXXXXX. I have clearly indicated where I have used the published or unpublished work of others and I have provided the source of such work. I have acknowledged all main sources of help, and where the work was done jointly with others, I have specified what I have contributed and what has been contributed by others. Any conclusions, suggestions or assumptions are mine unless otherwise stated or attributed.

Signature
NAME IN CAPITAL LETTERS
DATE.....

- (ii) A **declaration of ethics compliance** to be signed by the candidate. Such statement should read as follows:

I declare that I have abided by the University's Research Ethics Review Procedures.

Signature
NAME IN CAPITAL LETTERS
DATE.....

(iii) A declaration on supervision to be signed by the Supervisor. Such statement should read as follows:

The undersigned confirms that this dissertation has been undertaken under mu supervision and that I approve of its submission for final assessment by the Board of Examiners.

Signature
NAME IN CAPITAL LETTERS
DATE.....

In addition to the above two statements, the **final hard bound submission** should include the following declaration by the Supervisor:

The undersigned confirms that all changes and corrections as required by the Board of Examiners have been included in a satisfactory manner.

Signature
NAME IN CAPITAL LETTERS
DATE.....

The dissertation should include a short **abstract** (of no more than 1 A4 sheet; it is permissible here to use single line spacing and a font size 10 minimum) and should then proceed to sections of Contents, Acknowledgements, Introduction, Material and Methods, Results, Discussion, References and Appendices.

All pages except the preliminary pages should be numbered consecutively in Arabic numerals including pages with tables and figures. The preliminary pages (abstract, acknowledgements, table of contents and list of figures and tables) should be numbered consecutively in Roman numerals.

Tables and **figures** should be referred to in the text and inserted immediately after where they are first mentioned in the text, or as close as possible. Candidates are to note that text insertions must be referred to as 'Tables' or 'Figures' and no other nomenclature such as 'graphs', 'plates' 'photographs' etc. is to be used. In addition, when these are not original, a clear reference to source should be made. Tables and figures should be properly labelled and the accompanying legends should adequately and concisely describe the salient points without reference to the text.

Photographs should be of good quality and have appropriate lettering or arrows, which should be described in the legend. In the case of photomicrographs, a scale bar should be provided (good

quality black and white or colour photocopies are acceptable). For photomicrographs, scale bars must be included; magnification factors should be avoided. Maps should have a clear scale bar and a north-pointer.

The **reference list** should be in alphabetical order and include the full title and the full name of journals etc. It is recommended to use the style of presentation adopted by the American Psychological Association as it covers both standard and grey literature and all manner of other resources and it is very logical. This is available as a manual in hard copy and students may also wish to consult the following web page: Web Extension to American Psychological Association Style (WEAPAS)

<http://www.beadsland.com/weapas/>

Note that websites and web pages should be referred to in the standard format as given in the American Psychological Association style manual and should not be referred to just by their URL (see WEAPAS).

The purpose of a reference list is to enable the reader to trace the original reference and read it. Therefore, if in doubt, ask yourself if you would be able to find the reference on the basis of the information that you provide.

References in the text should be in full on first mention, e.g. (Brown, Smith & William, 1990), subsequently abbreviated to (Brown *et al.*, 1990). In cases where more than four co-authors are involved it is permissible to use *et al.* on first citation. All references cited in the text must appear in the reference list. In cases where a reference is being quoted but the original reference is not viewed, this should be reported as "Valletta (1999) as quoted by Zammit-Incorvaja (2001)"; in the references list both Valletta (1999) and Zammit-Incorvaja (2001) should be included but the unavailable primary reference should be followed by *n.v. (non vidit)* or 'not seen'. Such citations should however be kept to a bare minimum.

Units of measurements, symbols and abbreviations should be consistent. The SI system should be used.

It is expected that the rules of biological nomenclature in reporting scientific names of species are scrupulously followed. It is also expected that scientific names are spelt correctly. If in doubt, consult one of the many on-line databases available.

The responsibility for accuracy in references and spelling lies with the candidate.

If raw data are presented these should be collected in the appendices. It is permissible to place voluminous raw data on a computer diskette or CD, however, the contents of such media must be clearly stated in print in an appendix which must also include exact details of the software (including version) that can be used to access them.

When students make use of statistics, they are expected to know why they use particular statistical techniques and be aware of the assumptions, pitfalls or shortcomings of the tests employed. Though it may be necessary and acceptable to include **summaries** of statistical treatments, it is not

advisable to clutter the appendix with data generated from statistical treatment.

Students are to remember that the dissertation is not an exercise in graphic design. There are reasons why one uses a line graph and not a bar chart (which are not interchangeable) and vice versa, or any other form of graphical presentation. There are times when a 3-D graphic presentation is necessary and should be used, but such presentations are not meant to decorate the dissertation. Double presentation of results, for example, the same data presented as a table then as a graph, is to be avoided.

In some cases, it may not be possible to follow the above norms due to the nature of the work. Students should seek the guidance of their supervisor in such cases but are not to vary from the above norms without the express permission of the Examining Board.

Students are to note that they may be penalized if they do not follow such guidelines without prior permission.

Important notes:

1. It is the student's responsibility to keep regular contact with the supervisor and to keep him/her informed of progress. **Although students are normally assigned to a particular supervisor (or supervisors in the case of joint supervision), they are encouraged to seek assistance and advice from other members of the academic staff if necessary. Project work normally requires a multidisciplinary approach and seeking help from other members of staff on subjects of their specialization is strongly advised. Any help received, be it advice, literature, loan of equipment etc. should be fully acknowledged.**

Students are encouraged to find out what other students, particularly postgraduates, and what members of staff are working on; in this way they know whom to seek for advice (important in a small University such as the UM where the scientific community is very small). In this regard, students would also do well to attend Departmental seminars, lectures given by guest lecturers and any other event that brings them into contact with their peers and teachers.

2. The source of all material that is not the original work of the student must be acknowledged. Plagiarism will not be tolerated and will be penalised. (Students may wish to note the sections on plagiarism and how to avoid it on the Department's website at http://home.um.edu.mt/biology/12_links.html).

Appendix: Dissertation title-page template

A preliminary study of the identification of Myxozoa through
DNA barcodes.

John Doe

A dissertation presented to the Faculty of Science in part fulfilment of the requirements
for the Degree of Bachelor of Science (Honours) at the University of Malta

Supervisor: Dr Edson Arantes do Nascimento

Co-supervisor: Dr Artur Antunes Coimbra

Department of Biology, University of Malta

May 2023