



Guidelines for Masters degree in Biostatistics  
**Workplace Project Portfolio**  
 (BCA code WPP)

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## Goal

The aim of this unit is that the student gains practical experience, usually in workplace settings, in the application of knowledge and skills learnt during the coursework of the Masters program.

The student will provide evidence of having met this goal by presenting a **portfolio** made up of a **preface** and **project reports**.

## Disclaimer

This document describes a generic form of the WPP. The requirements of individual universities may differ from those described here. 1, 2 and 4 (BCA) unit options may be available.

## Prior to enrolment in WPP...

Adequate supervisory arrangements must be in place before students commence this unit. Students should discuss options for WPP with the BCA program coordinator at their home university and ask about access to examples of previous WPP portfolios.

## Identification of suitable WPP topics

Students may identify topics for the projects of their WPP report in a number of ways. Students who are currently employed in health research may choose a topic relevant to their job. Other students may be assisted by their local WPP unit coordinator to make connections with a researcher who may be in a clinical area, in health services or in epidemiological research. It will usually be appropriate to identify topics in which there is a co-supervisor with a specific genuine interest in the results of the work, in order to ensure there is strong focus on the application of the work and on communication with non-statistical users of the results.

Projects should be selected to challenge the student and extend their knowledge, consolidating concepts and theories learnt through the BCA programme. Examiners will assess project reports in the context of the previous experience of the student, as described in your portfolio Preface. For example, students who have little clinical experience but a strong mathematical background will have a different project focus than students who have a strong clinical/epidemiological background but less mathematics. The selection of a suitable project topic and the subsequent report should be tailored to and accurately reflect the background of the student.

A project may include any of the following:

- primary or secondary analysis of health data and a report describing the work and interpretation of results;
- scientific manuscript for a peer-reviewed journal, with an appendix giving further detail of the statistical methods used;
- design work on a study, e.g. a clinical trial or health survey, and a report describing the work;
- statistical consulting project which might involve advising the client on design or analysis and guiding the work, and a report describing the work;
- evaluation of a data collection, data management or health information system from the perspective of statistical analysis of the data, and a report summarising the findings.

When more than one project is completed, the projects should not all be of the same type and must involve the use of different statistical methods and concepts (e.g. not all client reports on RCTs).

At least one project should involve complex multivariable analysis of data.

## Publication of material from a WPP project report

Students should be aware that there are significant issues that must be considered prior to the publication of any material from a WPP project. These include ownership and confidentiality of the source data and results, inclusion of appropriate authorship, protection of copyright, and general approval from the supervisor of the WPP student that the content is fit to publish. Students should therefore engage in discussion with their supervisor (or Program Coordinator of their university of enrolment if the supervisor is external) prior to the preparation of any manuscripts for publication based on the WPP work. Adherence to this is of particular importance if a student is contacted directly by a publisher offering to publish the WPP in its original form, free of charge, and promising wide dissemination.

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## Content of the Portfolio

The portfolio will contain:

### A. a Preface

This will contain an outline of the context in which each project was conducted, an outline of the work done and a reflection on the whole learning process for this unit.

### B. one or more Project Reports

These reports may relate to different parts of the same study (e.g. design of a clinical trial, data collection, analysis and interpretation) or may comprise completely different projects.

Generally, students should complete 1 project per BCA unit of study of WPP.

As part of the assessment of the WPP students will also complete:

### a Statistical Analysis Plan

and deliver an **Oral Presentation** about their research topic.

## The Preface

The Preface serves as an introduction to the portfolio of work and an overview of the whole unit. The aim of the preface is to give the reader your perception of what you learned, and how you learned it. The preface allows the student to place the project report(s) into context, demonstrating the increased confidence and competency of the student by the end of their study.

In the preface, the student should discuss their perceived change in knowledge and skills as a result of undertaking the projects comprising the workplace portfolio. Other suggested areas for discussion in the preface (where relevant) are the relationship of the portfolio work to coursework undertaken, difficulties in determining appropriate analysis methods, useful sources of assistance other than the supervisor, and statistical consulting communication issues. The preface must include a section of reflection on the whole learning process from the student's perspective, including issues of communication, team work and ethical considerations (e.g. in relation to the code of conduct of the Statistical Society of Australia, see [SSAI Code of Conduct](#)).

Ideally, the preface should be presented with similar headings to the marking scheme used for the Preface. This will allow examiners to evaluate how the student managed the project

report(s) within the proposed objectives of the WPP.

## Project Reports

Each project report should comprise

- A front sheet of no more than 2 pages giving:
  1. Project title
  2. Location and dates
  3. Context (provide a brief description of the context in which the work was done, including a short summary of the problem, how this project arose, objective of the problem, and the statistical and content-matter supervisors)
  4. Contribution of student to the project as a whole (may use bullet points)
  5. Statistical issues involved (may use bullet points to summarise the statistical topics covered by the student)
  6. Signed declaration by student (a short declaration about the evidence of the student's work, following the lines of "I declare this project is evidence of my own work, with direction and assistance provided by my project supervisor(s). This work has not been previously submitted for academic credit.")
- A statement by the main supervisor (see below for details)
- Report on the project – this may take many different forms as appropriate for the setting. Examples include a report for a client, a manuscript submitted to a journal (with statistical appendix), data documentation, briefing document, or conference presentation.

Project reports should not include computer printout unless it is absolutely essential. The results of computer analysis should be presented in appropriate tables or figures (see BCA Guidelines for Presenting Statistical Results).

## Portfolio format

### *Length*

A portfolio that includes a preface and two project reports should generally be around 10,000 words in total length (about 50-60 A4 double-spaced pages), excluding figures, index/table of contents, bibliography and any appendices. This may vary depending on the details of each project.

A single-project portfolio would be slightly more than half this length (including the preface).

### *Format*

The portfolio should be written in English of an acceptable standard. If English is not your first language, you may need to seek help to assist with your grammar (such help is available from universities' student support services).

Unless the project reports have already been prepared in a required format other than that described here, the portfolio should be formatted as follows:

#### *Appearance*

- A4 size only, in PDF format.

#### *Text*

- Page numbers should be shown within margins.
- Double or one-and-a-half spacing of text should be used.

- Standard easy-to-read fonts are required (eg. Times New Roman, Arial) and should be no smaller than 11 point for text, and 9 point for footnote text.

The report should be **readily accessible to a biostatistical reader unfamiliar with the clinical area of application**. When the content area has its own technical terms, these should be defined when they first appear in the text and compiled into a glossary at the front of the report. Similarly, abbreviations should be defined when they first appear in the text and, when several non-standard abbreviations are used, a list of abbreviations should appear at the beginning.

## **Statistical Results**

Students must follow the BCA Guidelines for Presenting Statistical Results, which give guidance on the precision of reported results and on preparing tables, graphs, frequency distributions, and histograms. These [guidelines](#) are available from the BCA website.

## **References**

Students must follow the BCA Guidelines for Academic Referencing, which give guidance on referencing styles for all different types of references, including journal articles, books, government reports, and websites. These [guidelines](#) are available from the BCA website.

## **Statistical Analysis Plan**

A statistical analysis plan (SAP) is a document which contains detailed information about the proposed statistical analyses to be undertaken for a research project, provided in more technical detail than specified in a study protocol, ethics application, or trial registration.

Ideally, an SAP should be completed during the planning stage of a study (prior to data being accessed). For this unit, students will be required to populate a Statistical Analysis Plan with the details of their proposed analysis. This will contain more detail than provided in the initial project proposal.

Please contact the program coordinator at your enrolling University for details of how to complete an SAP for your WPP.

## **Oral Presentation**

The purpose of the presentation assessment is four-fold:

- 1) It provides students with the opportunity to gain experience presenting their work in a small (and safe) group setting;
- 2) It allows students to receive feedback on their analysis approach, results, and interpretation prior to submission of the final report;
- 3) It allows students to engage with others and gives the opportunity to provide and receive peer-feedback; and
- 4) It helps to keep students on track for on-time completion.

Specific requirements regarding the format, the grade weighting, and the schedule of the Oral Presentation will vary by each institution. Please contact the program coordinator at your enrolling University for details.

## Supervision

### *Preparation for WPP*

- **Consultation with the BCA program coordinator**

Adequate supervisory arrangements must be in place before students commence WPP. Students should discuss options with the BCA program coordinator at their home university. The program coordinator will advise on the suitability of projects and approve supervisory arrangements.

- **Proposal for project/s**

Prior to discussion with the program coordinator, or as a result of these discussions, a Proposal for Project should be prepared for each project that is undertaken. This should be no more than a page (per project) and contain a brief outline of the proposed project, including arrangements for supervision.

The Proposal for Project should be approved by the Program Coordinator, with a copy sent to the BCA Executive Officer.

### *Supervisor/s*

Each student should have a statistically qualified supervisor with whom to discuss the plan for projects and progress towards producing the portfolio. This supervisor may be the program coordinator at the university where the student is enrolled (the enrolling university). Alternatively, in consultation with the student, the program coordinator may nominate a professional (bio)statistician to be the supervisor or associate supervisor for one or more projects. An associate supervisor may supervise a particular project or provide backup in case the main supervisor is unable to take a close role.

A main or associate supervisor who is not the program coordinator will be a person approved by the enrolling university.

If the enrolling university is unable to offer suitable supervision for a chosen project then the student may need to select a different project or nominate an alternative supervisor.

The supervisor should guide the student at each stage of the project or projects and provide feedback on drafts of the project reports.

### *Supervisor Statement*

At the completion of the project/s, before submission for assessment, the statistics supervisor\* is asked to write a brief statement of no more than half a page, commenting on the degree of independence of the work, the quality of the student's engagement with the project, and how they tackled problems and challenges such as communication issues and timelines.

\*Where there are two supervisors, a statistics and a content supervisor, the statistics supervisor should write the statement.

## Assessment

1. Usually the university grading scheme will be used rather than pass/fail so it can be used in the calculation of grade point averages.

NB: WPP is not graded at the University of Sydney.

2. As far as possible there should be two examiners, one from the student's own university (but not closely involved with supervising the student) and the other from another university in the BCA consortium.
3. Each part of the portfolio will be marked according to assessment sheets supplied to each examiner.
4. A total mark for the projects will be obtained as the simple average of the project

reports, over the two examiners.

- Students will need to submit their portfolios for examination by dates set each semester by their university, to ensure the work can be assessed by examiners and the results are available for the BCA and program examiners' meetings.

### **Marking scheme for Project Reports**

Reports will be assessed according to the overall quality of the biostatistical work that was presented and give an initial score according to the following classification:

<b>The quality of the biostatistical work was:</b>	<b>Category</b>
<b>Excellent:</b> demonstrated ability to work with ideas and methods beyond the level expected in BCA coursework.	HD
<b>Very good:</b> demonstrated capacity at a level similar to high-achieving coursework.	D
<b>Good:</b> demonstrated a solid understanding and application of methods learned in BCA coursework.	C
<b>Adequate:</b> acceptable work for a biostatistician who would work primarily under supervision.	P
<b>Fail:</b> work not demonstrating adequate grasp of essential elements of biostatistics required to work professionally.	F

The total mark for the project from each examiner will be the unweighted sum of scores for all items which are not assessed as "Not applicable" scaled to the range from 0 to 100.

Students will not be asked to make revisions to WPP submissions unless the examiner is proposing to fail the student.

NB: This does not apply at the University of Sydney, where WPP is ungraded and emendations may be required before the portfolio is passed.

**Examiners should comment on the submission by providing a brief report – generally no more than a few paragraphs.**