Component 2 Assessment Brief
Research Skills: MIC11107

Edinburgh Napier
UNIVERSITY

1.	**Module Number**	MIC11107
2.	**Module Title**	Research Skills
3.	**Module Leader**	Dr Catharina Alam
4.	**Responsible Lecturers** Student's first point of contact	Dr Catharina Alam & Dr Katarzyna Siemienowicz
5.	**Assessment**	Laboratory Report
6.	**Weighting**	60% of overall module grade
7.	**Size and/or time limits for assessment**	1000 words +/- 10% (or the equivalent thereof)
8.	**Deadline of submission**	**Monday 22nd April** 2024 by **Midday** (week 13 of module)
9.	**Arrangements for submission**	Coursework should be submitted electronically via the FINAL Turnitin submission box on Moodle before the deadline. You must submit the work as a Microsoft Office Word file. You are advised to keep your own copy of the assessment.
10.	**Assessment Regulations** All assessments are subject to the University Regulations	Coursework submitted after the agreed deadline will be marked at a maximum of **P1**. Coursework submitted over five working days after the agreed deadline will be given **F6**. If you know that you will not meet the deadline due to **exceptional circumstances,** you should fill in a RE1 form (extension request form) and contact the module leader in good time **prior** to the submission date. Extensions without a valid RE1 form **will not be considered.**
11.	**Requirements for the assessment**	Full details are provided on the next pages
12.	**Special instructions**	The assessment is done **individually** and is based on research skills taught in the lectures, tutorials and workshops and as on the acquisition of skills and data obtained in the laboratory sessions. Therefore, students must attend and engage with all lab sessions to obtain full marks. For extenuating circumstances in relation to lab attendance you MUST contact the module leader (c.alam@napier.ac.uk). **Use of AI tools is not permitted** for this assessment.
13.	**Return of work and feedback**	You will receive written feedback on your submission within 3 working weeks of the deadline. If you wish to discuss this, please make an appointment with Dr Alam after the module marks have been released.
14.	**Assessment criteria**	Marking scheme is provided on following pages.

Component 2 Assessment Brief Details and Instructions

MIC and MBC Lab report: Component 2 assessment, 60% of module (max 100 marks)

Using the data obtained during the laboratory sessions (from your own group and two additional data sets from your classmates) you need to:

1. Write a summary (max 250 words) of your results. **(15 marks)**

2. Present the raw data in a concise table format, with full table legend. **(10 marks)**

3. Analyse the results and present a data summary in an appropriate table- or figure format(s). The summary table/figure should include a fully explained legend. **(25 marks)**

4. Write a scientific discussion (max 400 words) where you critically review and discuss your results. **(50 marks)**

The word count includes the summary, discussion and figure/table legends. The word count does not include references or words within the tables/figures.

Further instructions for each section:

1. Summary

The summary should be no longer than 250 words and be written in simple language, avoiding complicated technical scientific phrases, words or acronyms (unless explained). The summary should include the following sub-sections:

➢ **Background**
➢ **Aims**
➢ **Methods**
➢ **Key findings and interpretation**
➢ **Conclusions**

2. Present the raw data

You should report all data from your own MIC and MBC assays and two additional data sets from your classmates (you will receive instructions for data sharing during the lab practicals).

- All the raw data should be presented concisely in one clearly labelled table format, **indicating MIC and MBC values (as µg/ml) for all assay repeats (define and report n value)**. You must also indicate which groups the data is taken from.
- The table should include the **mean *E. coli* CFU/ml counts** as well as observations about control wells and should **state whether the assay is valid**.
- **Write a table legend that fully describes the table content**.

(Max 4 marks for legend and max 6 marks for the table)

3. Analyse the raw data and present the results in figure or table format

Combining the data for all assay repeats, put together appropriate table(s) or figure(s) to present the results:

- Treat each assay repeat as if it had been performed using different *E. coli* isolates and **report the MIC$_{50}$ ***, **MIC$_{100}$ ****, **and the MIC range** for your **controls and test drugs.**
- **Similarly, report the MBC$_{50}$, MBC$_{100}$ and MBC range**.
- **Specify your sample size (N)**, but note that only valid assay runs should be included.
- For each assay, **state the sensitivity** (sensitive, intermediate or resistant) of the *E. coli* to the controls and test drugs, according to the EUCAST specifications.
- **Include a table/figure legend that fully describes what the table/figure presents.**

* MIC$_{50}$ = the MIC for 50% of the *E. coli* isolates
** MIC$_{100}$ = MIC for inhibiting 100% of the *E. coli* isolates

(Max 10 marks for legend and max 15 marks for the table/figure)

4. Scientific discussion (max 400 words):

Write a scientific discussion where you describe the key results and their meaning/interpretation as well as the importance and relevance. The discussion should:

- Briefly summarise key results, interpretations and the implications of your results. Compare your study and results with previously published studies and other relevant literature.
- Discuss any limitations in your study or any problems during the study and their potential impact on the results (citing relevant literature, where appropriate).
- Discuss implications for future studies: what still needs to be done, or how to explore further.
  (For more guidance on how to write a good scientific discussion, you can refer to the Research Skills week 4 Moodle resources).

All scientific references should be in the APA7th format.

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End of assessment

[Total 100 marks]

Assessment criteria

Below is an overview of what a fail, pass or distinction for this assessment will look like:

F: Poorly relevant/described, generic content, significant errors in data presentation, analysis and interpretation. Poorly structured text and/or tables and incorrect or missing elements in the report. Inadequate or irrelevant references.

Note that a report marked as F3-F6 will contain most of these shortcomings, whilst an F1-F2 may contain only some of the shortcomings or errors stated above.

P$_{low}$ = Adequately relevant/described content, mostly minor errors or some lacking clarity in a few places. Data sorting, presentation, analysis and interpretation is adequate and correctly describes the main aspects, but some elements may be missing, incorrect, poorly structured or poorly explained. Scientific references/discussion are overall appropriate but may lack in-depth analysis/interpretation.

P$_{high}$ = Relevant, correct and clearly described content. Clear presentation of data, well formatted with only minor errors, or missing minor details etc. Correct data analysis and interpretations throughout, with a sound scientific discussion backed by relevant literature, indicating a thorough understanding of the results and the scientific relevance.

D$_{low}$ = Very well focused and relevant, correct interpretations and conclusions all clearly described and well structured. Relevant literature included in correct format and an appropriate and well-articulated, critical scientific discussion about results, showing a good understanding of the experiments, results and being able to put it into perspective with previous scientific literature.

D$_{high}$ = Very well focused and relevant, correct interpretations and conclusions all clearly described and well structured. Relevant literature included in correct format and an excellent, well-articulated, critical and in-depth scientific discussion about results, showing a thorough understanding of the experiments and results and being able to put it into perspective with previous scientific literature. Demonstrates a high level of scientific understanding of the scientific topic, experimental setup, analysis, troubleshooting, challenges, significance etc. throughout the report.