



University of Essex

Online

Research Methods and Professional Practice: Seminar: 4 Karen Outram



Recap up to unit 6:

- **By now all formatives that need to be completed and embedded in your e-portfolio up to unit 6 should have been added to your e-portfolio, [with tutor feedback added where relevant]**
- **I have recapped over the past three seminars what needs to be in your e-portfolio up to week 6, but it is also each students responsibility to keep on top of this, [and not the tutors]**
- **Where students have engaged in formative I have given feedback**
- **For example: Collaborative formative 1, I gave generic feedback which each student can then add to their e-portfolio**



Recap up to unit 6:

- For the mandatory Literature Review, all students who submitted their Literature Review got specific 1:1 feedback emailed to them
- For those students who did not submit I gave a generic feedback in announcements with some 'umbrella' comments
- For Collaborative formative 2, [occurring in units 7,8 and 9], I will also give generic feedback in forums, which can then be added by students to their e-portfolios
- **Your first mandatory summative is due the 25th of April – each student will get written/graded feedback for that, [and any other summative]**
- As discussed you should be adding any relevant formative excerpts to your e-portfolio as you go along, with tutor feedback as appropriate



Recap up to unit 6:

- To check what student e-portfolio content requirement is, please check on your online hub in:
- e-portfolio [this is an online header in your online menu]:
- When you click on 'e-portfolio' a page will be revealed, scroll to the bottom, and there will be a shaded section that states: 'This module', [see image on next slide after this slide here]



Recap up to unit 6:

Course: Research Methods and P x

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THIS MODULE

Research Methods and Professional Practice (All programmes)

1. Appraise the professional, legal, social, cultural and ethical issues that affect computing professionals
2. Appraise the principles of academic investigation, applying them to a research topic in the applicable computing field
3. Evaluate critically existing literature, research design and methodology for the chosen topic, including data analysis processes
4. Produce and evaluate critically the resulting research proposal for the chosen topic.

2 Collaborative Discussion Forum Summaries (These will cover learning outcomes 1 and 2).

Reflective Piece This covers a key aim for this module.

The Portfolio should also include the following, as part of professional development aspect of the module:

- Feedback from peers and tutors
- Professional Skills Matrix and action plan (PDP)

Other artefacts developed during the module should be included in the portfolio. These include the **statistical analysis** activities carried out during the module. You will need to describe/show how those artefacts relate to the module learning outcomes.

Skills to be gained here are:

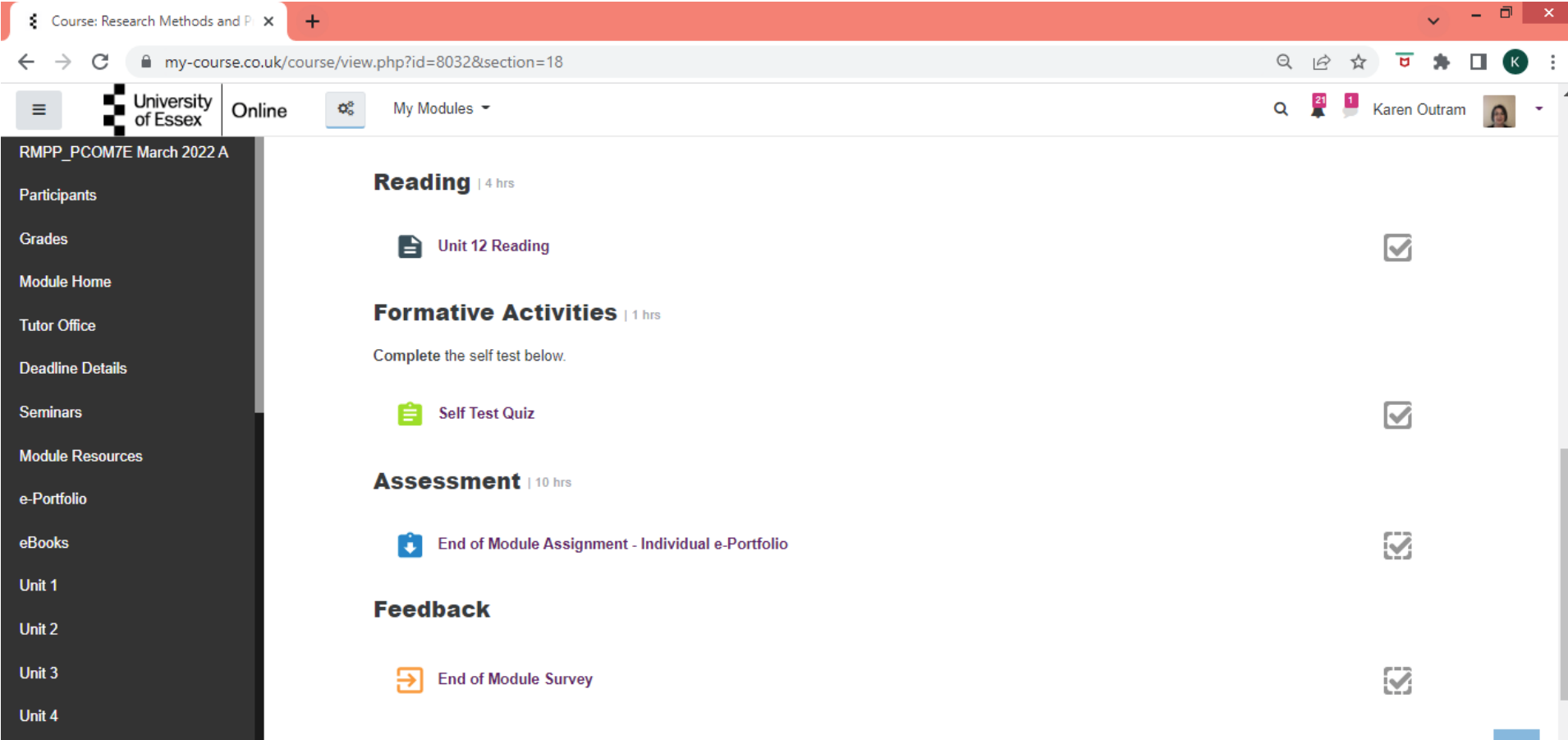
- Time management
- Commercial Awareness
- Critical thinking and analysis
- Decision-making
- Problem-solving
- Initiative
- Entrepreneurial
- Communication and Literacy skills
- Numeracy
- IT and Digital
- Interpersonal
- Critical Reflection
- Research

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Recap up to unit 6:

- Additionally, the e-portfolio full academic requirement is contained in Unit 12:



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Reading | 4 hrs

Unit 12 Reading ☒

Formative Activities | 1 hrs

Complete the self test below.

Self Test Quiz ☒

Assessment | 10 hrs

End of Module Assignment - Individual e-Portfolio ☒

Feedback

End of Module Survey ☒



Recap up to unit 6:

- **To re-iterate as tutors we can guide, but ultimately it is the students responsibility to keep on top of deadlines, complete work in a timely manner and also observe all relevant formative and summative deadlines, and how these impact generally, but on that final e-portfolio specifically...**



Looking forward: Unit 7 – Summative Literature Review submission:

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Formative Activities

| 2 hrs

Prepare for next week's seminar session by attempting the worksheets on hypothesis testing and summary measures, available in Unit 8.

Remember to record your results, ideas and feedback in your e-Portfolio. If you have not already done so, you should share a link to your e-Portfolio in the [forum](#) provided in unit 1 for formative feedback.

Assessment

| 8 hrs

Literature Review

Unit 6Unit 8

[Site accessibility statement](#)

[Statement on Ukraine crisis](#)

You are logged in as [Karen Outram](#) (Log out)

[Reset user tour on this page](#)

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online.essex.ac.uk

14:00

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Deadline details: Unit 7 – Summative Literature Review submission:

Course: Research Methods and P x

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Deadline Details

On this page you will find deadline details for when your work needs to be submitted throughout the module. Please note that all deadlines are in UK time.

The units should be completed in order, by the date indicated. These deadlines will also appear in your Moodle calendar.

Please Note: All grades are subject to change until they have been agreed by the External Examiner and ratified by the Examination Board.

Submission Guidelines for Assignments

Please review our [Submission and Editorial Guidelines for UoEO Assignments](#) before submitting any assignment.

Unit	Component	Deadline
7	Literature Review	23:55 hrs Monday 25th April 2022
10	Research Proposal Presentation	23:55 hrs Monday 16th May 2022
12	Individual Module e-Portfolio	23:55 hrs Monday 30th May 2022

Please note that the UK will move from GMT to BST on Sunday 27th March 2022.



Deadline details: Unit 7 – Requirement:

Course: Research Methods and P

RMPP_PCOM7E March 2022 A: Li

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Literature Review

This is the first summative assessment for this module and accounts for 30% of your final module mark. Submit by end of Unit 7. Word count is 2,000 words.

Assignment Brief

The literature review fulfils the learning outcomes where you will critically evaluate existing literature, research design and methodology for your chosen topic and so produce a literature review on this topic.

You will have selected the topic for this task from the list provided in Unit 1. You should refer to the Guide Questions provided in Unit 2 to evaluate and refine your literature review before submission, bearing in mind the key aims of a standalone literature review (with the applicable grading criterion highlighted from the grid on the Module Resources page):

- To provide an overview of current knowledge on the chosen topic. **(Knowledge and Understanding weighted at 30%)**
- To demonstrate an awareness of relevant, current literature. **(Use of Relevant sources weighted at 20%)**
- To highlight similar and contrasting views on your chosen topic. **(Criticality weighted at 30%)**
- To showcase your research and writing skills. **(Structure and Presentation weighted at 10%, Academic Integrity weighted at 10%)**

Learning Outcomes

- Appraise the principles of academic investigation, applying them to a research topic in the applicable computing field.
- Evaluate critically existing literature, research design and methodology for the chosen topic, including data analysis processes.

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Turnitin Originality Check

Before submitting your assignment, it is important to check the originality of your work by submitting your assignment to [Turnitin](#).

By submitting your assignment to this tool you will receive an originality report which can be used to check that you have not included other authors work without correct citation. It is important to note that submitting your work to the Turnitin Originality Check tool does not count as a submission of your final work. You must still submit your assignment below.

Academic Integrity and Plagiarism

We take academic integrity very seriously. Academic integrity means acting with fairness and honesty, giving credit to others where you are referring to their ideas or research and respecting the work of others. Plagiarism is defined as: 'Using or copying the work of others (whether written, printed or in any other form) without proper acknowledgement'. Before you finalise your assignment take time to check that all your statements are backed up with supporting evidence, that all sources you use - whether referring to their ideas, quoting directly or paraphrasing - are correctly referenced in the text. Correct use of referencing acknowledges the academic whose work has informed yours, enables the reader to find the sources you have used and demonstrates your ability to find and analyse relevant information.

Failure to properly acknowledge the work of others is an academic offence and may result in your work incurring a penalty or, in the most serious cases, you being removed from the course for academic dishonesty.

If you are unsure about referencing or plagiarism there are useful resources available in the Study Skills Hub which is accessible from the menu on the left hand side. If you are still experiencing difficulties with academic integrity then you can contact the Study Skills Team for individualised support studyskills.kol@kaplan.com

Please note, a word count penalty applies to this assessment.

If your assessment exceeds the word count limit or range by more than 10% then your awarded grade will be reduced by 10% grade points. For more information please see your [student handbook](#).

Not meeting the word count

There is no grade reduction applied if your assignment does not meet the word count range or limit, but to maximise your opportunity to achieve the highest grade possible, you should aim to meet the word count or range as closely as possible.

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ideas or research and respecting the work of others. Plagiarism is defined as: 'Using or copying the work of others (whether written, printed or in any other form) without proper acknowledgement'. Before you finalise your assignment take time to check that all your statements are backed up with supporting evidence, that all sources you use - whether referring to their ideas, quoting directly or paraphrasing - are correctly referenced in the text. Correct use of referencing acknowledges the academic whose work has informed yours, enables the reader to find the sources you have used and demonstrates your ability to find and analyse relevant information.

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Submission Instructions

- Submit your saved document below before the end of Unit 7.
- After the deadline, the submission page will be locked.
- Use UoEO Harvard referencing throughout.
- Your review should be 2,000 words in length.
- If you need to apply for Late Submission, please complete the [late submission of coursework form](#)

Grading summary

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Unit 7: Validity and Generalisability in Research

Welcome to week 7 where you will be looking at validity, generalisability and reliability. These are three important dimensions within research as they affect any conclusions you can make after your data collection and analysis. All these need to be considered before you collect any data.

You will then look at the differences in qualitative data and quantitative data and what you can do with it: how to analyse your data and how to present your results should be considered before you collect any data. Note that quantitative data leads us into descriptive and inferential statistics. Before this, however, there are processes of data cleansing and validation that need to be considered.

In this unit we shall:

- Introduce the concepts of validity, generalisability and reliability and how they impact on your research design.
- Consider the differences between qualitative and quantitative data and how to analyse and present your results.

On completion of this unit you will be able to:

- Understand how the concepts of validity, generalisability and reliability affect your investigation and the design of your research method.
- Consider how to analyse and present the results you obtain from your investigation and how they will enable you to answer your research question.

Lecturecast | 1 hrs

Validity and Generalisability in Research

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- Introduce the concepts of validity, generalisability and reliability and how they impact on your research design.
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- Understand how the concepts of validity, generalisability and reliability affect your investigation and the design of your research method.
- Consider how to analyse and present the results you obtain from your investigation and how they will enable you to answer your research question.

Lecturecast | 1 hrs

[Validity and Generalisability in Research](#) ☒

Reading | 1 hrs

[Unit 7 Reading](#) ☒

e-Portfolio Component | 2 hrs

[Collaborative Learning Discussion 2](#) ☒

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Collaborative Learning Discussion

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Collaborative Learning Discussion 2

This formative discussion will last for 3 weeks.

Discussion Topic

Case Study: Accuracy of information

Abi is a researcher at an institute and also a statistical programmer. Abi has received a project from a manufacturer to review the nutritional value of a new cereal, Whizzz. Having collected the necessary data, he now needs to perform the appropriate analyses and print the reports for him to send to the manufacturer. Unfortunately, the data Abi has collected seems to refute the claim that Whizzz is nutritious, and, in fact, they may indicate that Whizzz is harmful.

Abi also realises that some other correlations could be performed that would cast Whizzz in a more favourable light. "After all," he thinks, "I can use statistics to support either side of any issue."

Ethical Concerns

- Clearly, if Abi changed data values in this study he would be acting unethically. But is it any more ethical for him to suggest analysing correct data in a way that supports two or more different conclusions?
- Is Abi obligated to present both the positive and the negative analyses?
- Is Abi responsible for the use to which others put his program results?
- If Abi does put forward both sets of results to the manufacturer, he suspects that they will publicise only the positive ones. What other courses of action has he?

You should also highlight legal, social and professional impacts of any choices made. Please note that there are no right or wrong answers here and you may introduce local, as well as international, legislature in your responses.

You should demonstrate that you understand the topic covered and ensure you use references to academic literature (including journals, books, and reports). This activity will provide evidence of your personal growth and your summary post is required in your e-portfolio.

Your initial posting should respond to the question and be at least 200 words long. Your initial post should be labelled "initial post".

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Your initial posting should respond to the question and be at least 200 words long. Your initial post should be labelled "initial post".

Learning Outcomes

- Appraise the professional, legal, social, cultural and ethical issues that affect computing professionals.
- Evaluate critically existing literature, research design and methodology for the chosen topic, including data analysis processes.

Guidelines for Formative Discussion Responses:

- Referencing: When you have referred to other authors thoughts, ideas and opinions in your posts, you must reference the author as you would in an academic assignment using the UoEO Harvard reference style.
- This activity forms a component of your e-portfolio assessment which you will submit in unit 12.

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Unit 8: Inferential Statistics

Welcome to week 8 where you will be introduced to the different analyses available for the different types of quantitative data. This will mean looking at ways to describe your data and how to create and perform hypothesis tests. This is called inference, as we are making inferences about a population from a sample of data. Inference is the process of extracting meaningful and useful business information from raw data. This process is known as **statistical inference**, because it involves using the data to make valid inferences about the underlying population. As data is inherently variable, all such inferences will necessarily be subject to uncertainty. This uncertainty is quantified using probability.

Data consist of the observed values of one or more variables of interest. They are usually organised into **datasets**. A dataset can be thought of as a table, whose columns represent the different **variables**, and whose rows represent the individual **observations**. Each individual cell in the table contains the value that the variable takes for the given observation.

In order to extract meaningful and useful business intelligence from data, it is important that the methodology to be employed is valid for the variable or variables of interest. The first important distinction concerns the **level of measurement** of each variable.

When exploring data, it is helpful to try to summarise the data in some meaningful way. One approach is to construct a graphical summary. In this section, we (very briefly) explore some of the more useful graphical summaries.

It is often convenient to summarise numerical data using a few simple summary measures. Most commonly, two such measures are used. The first of these is a measure of **location**, and represents the value taken by "a typical observation" – that is, by an observation that falls "right in the middle of the data". As well as knowing the magnitude of a typical observation, some idea of the "variability" or "spread" of the data is also useful. This is provided by a measure of **dispersion**.

Instead of *estimating* some population value of interest that underlies the data, an alternative form of inference is to use the data to provide evidence about whether some assumption of interest regarding that population value is likely to be true. Such a form of inference is known as **hypothesis testing** and is usually preferred to the estimation approach when interest lies in comparing the relevant values underlying two or more different populations.

These are all techniques we can employ to find patterns and meaning from our data.

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whether some assumption of interest regarding that population value is likely to be true. Such a form of inference is known as **hypothesis testing** and is usually preferred to the estimation approach when interest lies in comparing the relevant values underlying two or more different populations.

These are all techniques we can employ to find patterns and meaning from our data.

In this unit we shall:

- Define the different levels of quantitative data.
- Define measures of location and spread.
- Introduce the concept of inference and hypothesis testing.

On completion of this unit you will be able to:

- Identify the different levels of measurement.
- Produce measures of location and spread.
- Perform appropriate hypothesis tests.

Lecturecast | 1 hrs

[Summary Measures and Inference](#)

Reading | 7 hrs

[Unit 8 Reading](#)

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Formative Activities | 14 hrs

Continue with the [Unit 7 Discussion forum](#). Considering what you have now learned in both units, you should respond to at least three of your peers' contributions from Unit 7. Please try to limit your posts to 200-300 words maximum, so that others may be encouraged to reflect on, and respond to your ideas. Your follow-up responses should be labelled as 'Peer Response'. For guidance, look at the guidelines for the peer review process on the [Department's homepage](#). This provides an excellent way to understand and constructively feedback on other peoples' points of view.

Complete the mandatory worksheet activities below.

Participate in the seminar this week.

Submit your Research Proposal Outline.

Prepare for next week's seminar session by attempting the Seminar 5 preparation questions, available in Unit 9.

📄

README: Summary Measures and Hypothesis Testing Worksheets

✓

📄

Inference Notes

✓

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Hypothesis Testing Worksheet

📄

Summary Measures Worksheet

📁

Unit 8 Examples - Workbooks

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Unit 8 Exercises - Workbooks

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Unit 8 and 9 Data Annexe and Datasets

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Research proposal outline

Research Proposal Outline

Seminar 4 | 1 hr

Title: Inferential Statistics Workshop

Join the [Seminar Session](#) this week.

For this workshop, you will need to work through the examples provided for you on hypothesis testing and summary measures. Please bring any questions you have about the analysis to this seminar. We will also discuss the interpretation of your results so please have your thoughts prepared.

Unit 7 Unit 9

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Research Proposal Outline

You can submit a brief outline of your research proposal this week. You will receive formative feedback on this submission to aid your final submission which is due in Unit 10.

See Unit 10 submission portal for full assignment details.

This assignment is formative and not graded.

This submission is not blind marked.

Grading summary

Hidden from students	No
Participants	20
Submitted	0
Needs grading	0
Due date	Monday, 2 May 2022, 11:55 PM
Time remaining	11 days 9 hours



Seminar 5: Is on the 4th of May 2022: Your research proposal is due in on: 2nd of May 2022:

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eBooks

Unit 1

Unit 2

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Unit 6

These seminars have activities that should attempt prior to each seminar.

Unit	Seminar Title	Date and Time
1.	Seminar 1 - Introduction	Wednesday 9th March 2022 at 9am (09:00 GMT)
3.	Seminar 2 - Peer review Activity	Wednesday 23rd March 2022 at 9am (09:00 GMT)
4.	Seminar 3 - Case Study: Privacy	Wednesday 6th April 2022 at 9am (09:00 BST)
8.	Seminar 4 - Inferential Statistics Workshop	Friday 22nd April 2022 at 11am (11:00 BST)
9.	Seminar 5 - Workshop on Presenting Results	Wednesday 4th May 2022 at 9am (09:00 BST)
11.	Seminar 6 - e-Portfolio Preparation	Wednesday 18th May 2022 at 9am (09:00 BST)

Click here to access the meeting

Recordings

You will find links to recordings in the [Module Announcements](#) on the Home page.

◀ Deadline Details

Module Resources ▶





Seminar 4 formative : And so, for your research proposal outline for 2nd May hand in: consider what you are being asked to do for summative in the presentation for unit 10:

Course: Research Methods and P x

Course: Research Methods and P x

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Research Proposal Presentation

This is the second summative assessment for this module and accounts for 30% of your final module mark. Submit by end of Unit 10.

Assignment Brief

The research proposal presentation fulfils the learning outcomes where you will evaluate critically existing literature, research design and methodology for your chosen topic, including data analysis processes and so produce and evaluate critically a research proposal for your chosen topic. This can be based on the literature review topic you chose in Unit 1 or the topic of your capstone project (MSc students).

You are required to create an audio-narrated slide presentation and a transcript in which you will present the following sections. These sections are required in a standard research proposal for the Computing department. You are free to combine/merge sections, where appropriate and without detriment to the structure of your presentation.

- Project Title.
- Significance/Contribution to the discipline/Research Problem.
- Research Question.
- Aims and Objectives.
- Key literature related to the project.
- Methodology/Development strategy/Research Design.
- Ethical considerations and risk assessment (as part of your ethical approval application).
- Description of artefact(s) that will be created (if applicable).
- Timeline of proposed activities.

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Seminar 4 formative : And so, for your research proposal outline for 2nd May hand in: consider what you are being asked to do for summative in the presentation for unit 10:

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Instructions

For this assignment, you are required to record a **15-minute presentation**, along with a transcript of the audio file. The presentation slides should not be wordy or repeat verbatim the oral presentation. Visuals, illustration, statistics, charts, tables and indication of key pointers are welcome. In assessing the presentation for marking, emphasis will be placed on the oral content. However, clarity of the visual presentation will also be taken into account.

It is strongly recommended that, in order to record your presentation, you use a headset with a microphone.

There is no word count for the slide presentation, and there is no fixed word count for the oral presentation/transcript. However, note that an average speech rate for a comfortable and clearly orally paced presentation is about 100-150 words per minute. Given that your presentation should be about 15 minutes, you can work against a minimum of 1500 to a maximum of 2250 words in your oral presentation/transcript.

Before submitting the work, consider the following checklist in conjunction with the applicable grading criteria (see the Module Resources page):

Knowledge and Understanding weighted 25%, Use of relevant sources weighted at 5%:

- Are the major points identified?
- Are the details presented clearly?

Criticality weighted at 25%, Use of relevant sources weighted at 5%:

- Is there a critical discussion/analysis of your methodology/design?

Structure and Presentation weighted at 10%:

- Is the presentation well organised?

Presentation and Communication Skills weighted at 30%:

- Is the presentation clearly introduced and concluded?
- Is the presentation well-paced and timed?
- Is the information presented clearly and concisely?
- Is the presentation style lively, fluent and engaging?

Slide Presentation & Audio Guidance

14:16 21/04/2022



Seminar 4 formative : Looking at the summative in unit 10 will help you to shape a 500 word proposal outline of what you intend to do:

- Which will be submitted to me your tutor online, [as discussed through previous slides in this seminar]
- It is very important everyone submits this for feedback – again these formative exercises should be added to your e-portfolio showing tutor feedback.
- Remember the proposal outline has to be submitted by the 2nd May 2022 by 23.55 hrs [UK] time for you to get feedback on the proposal ahead of your summative submission. I can't accept e mailed proposal submissions after this date.



Seminar 4 formative : Looking forward to unit 9 formative:

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Course: Research Methods and P x

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Unit 9: Analysing Qualitative Data

Welcome to week 9 where you will be looking at the different methods available to you for analysing qualitative data.

By its very nature, qualitative data is open to different interpretations. So, it is harder for the researcher to remain unbiased. If this is the type of data you will obtain from your research, you will need to keep this in mind when presenting your results.

Qualitative data analysis works a little differently from quantitative data, primarily as qualitative data is made up of observations, images, and words. It is almost impossible to derive absolute meaning from such data. Hence, the reason it is used mostly for exploratory research. Another key difference between quantitative and qualitative data is in the analysis: analysis for qualitative research often begins as soon as the data is available whereas there is a clear distinction between data preparation and data analysis stages in quantitative research.

In order to analyse qualitative data, such as responses from an unstructured qualitative interview, there is a need to code the responses. Coding here refers to the categorisation of data. BRM (2021) goes through types of qualitative data coding. Software is often used to ensure efficient coding and analysis, and sometimes involves cleaning the data.

In this unit we shall:

- Introduce the various ways to analyse, interpret and present results from qualitative data.
- Discuss the advantages and drawbacks of each of these methods.

On completion of this unit you will be able to:

- Understand the different types of analysis and how they may be useful for the data you have collected.
- Understand the different charts available to present the different types of data you have obtained.

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Seminar 4 formative : Looking forward to unit 9 formative:

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Formative Activities

| 10 hrs

Continue with the [Unit 7 Discussion forum](#). You should now provide a summary post into to the discussion in Unit 7 based on your initial post and the feedback from your peers. Please try to limit your posts to 200-300 words maximum. Your follow-up responses should be labelled as 'Summary Post'. These posts should be included in your e-Portfolio.

Complete the mandatory worksheet activity below.

Participate in the seminar this week.

- README: Charts Worksheet and Analysis
- Charts Worksheet
- Unit 9 Examples - Workbooks
- Unit 9 Exercises - Workbooks
- Unit 8 and 9 Data Annexe and Datasets

Seminar 5

| 1 hr

Title: Workshop on Presenting Results

Join the [Seminar Session](#) this week.

Ensure you work through the Charts Worksheet Examples before attending the session. If you have any questions, we will discuss them in during the session.

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E-portfolio activity :

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Deadline

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Collaborative discussion 1

End of unit 3

e-Portfolio

1

Reasoning Quiz

End of unit 1

Formative

1

Reflective Activity 1

End of unit 1

e-Portfolio/Formative

4

e-Portfolio Activity: Literature Review Outline

End of unit 4

e-Portfolio/Formative

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Wiki Activity

End of unit 6

Formative

6

e-Portfolio Update

End of unit 6

e-Portfolio/Formative

7 - 9

Collaborative discussion 2

End of unit 9

e-Portfolio

8

e-Portfolio Activity: Research Proposal Outline

End of unit 8

e-Portfolio/Formative

8 - 9

Statistical Worksheet Submissions

End of unit 10

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12

Self Test Quiz

End of unit 12

Formative

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Recap on unit 7,8 and 9 request for prep for formative from seminar 3:

Looking forward to seminar 4:

- Prepare for the next seminar session by attempting the worksheets on hypothesis testing and summary measures, available in Unit 8.
- Collaborative Learning Discussion 2
- **This formative discussion will last for 3 weeks.**
- Week 7: initial post.
- Week 8: at least 2 peer responses.
- Week 9: and then a summary response.



Unit 8: Inference notes [guidelines regarding working out statistics]

Unit 8 Inference notes - Compatibility Mode • Saved to this PC • Search (Alt+Q) karen outram KO

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Unit 8 Inference

Step 1 State the Hypotheses

We begin by stating the value of a population mean that we are claiming in a null hypothesis. So, we may hypothesise that children watch TV for 3 hours per day. So it would be that the population mean is 3 hours per day.

This is the starting point – similar to the proposition of innocence in a court room.

When a defendant is on trial, the jury starts by assuming that the defendant is innocent. The basis of the decision is to determine whether this is likely based on the evidence produced. Similarly in hypothesis testing, we start by assuming the null hypothesis is true unless we have enough evidence to dispute that.

Definition: Null hypothesis (H_0)

The null hypothesis is a statement about a population parameter, such as the population mean, that is assumed to be true.

The alternative hypothesis is what we think it might be. We have a choice of three alternatives. For the children we might think the number of hours is more than 3, or less than 3 or just not 3.

Definition: Alternative Hypothesis (H_1)

An alternative hypothesis is a statement that contradicts the null hypothesis by stating that the actual value of a population parameter is less than, greater than or not equal to the value stated in the null hypothesis.

Step 2: Set the Criteria for the Decision

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Focus 100%

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Unit 8: Inference notes [guidelines regarding working out statistics]

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Step 2: Set the Criteria for the Decision

For this we have to state the level of significance for a test ie beyond reasonable doubt. We are collecting data that will either support, or not, the null hypothesis. The level of significance is typically set at 5% for behavioural studies, often lower (say 1%) for medical studies.

When the probability of obtaining the sample mean value we have is less than 5% if the null hypothesis is true, then we conclude it is unlikely that the null hypothesis is true.

This probability will change for each sample we take so can never say we have 'proved' anything – there is a small chance that this value could have been obtained if the null hypothesis is true. This is determined by our choice of criteria.

Definition: Level of significance

This refers to a criterion of judgement upon which a decision is made regarding the value stated in a null hypothesis. The criterion is based on the probability of obtaining a statistic measured in a sample if the value stated in the null hypothesis were true.

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Unit 8: formative notes:

- You then have test examples: based on the 'Inference' notes/instruction sheet and questions regarding what your conclusions would/will be when you then apply inferencing to 'the Hypotheses testing worksheet'. You are also required to interpret findings using the 'Summary measures worksheet'.
- Use the yellow folder, unit 8 examples – workbooks and unit 8 exercise workbooks when completing your worksheets, as well as the Unit 8 and 9 Data Annexe and Datasets, [please see screen shot on following slide].



Unit 8: formative:

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Continue with the [Unit 7 Discussion forum](#). Considering what you have now learned in both units, you should respond to at least three of your peers' contributions from Unit 7. Please try to limit your posts to 200-300 words maximum, so that others may be encouraged to reflect on, and respond to your ideas. Your follow-up responses should be labelled as 'Peer Response'. For guidance, look at the guidelines for the peer review process on the [Department's homepage](#). This provides an excellent way to understand and constructively feedback on other peoples' points of view.

Complete the mandatory worksheet activities below.

Participate in the seminar this week.

Submit your Research Proposal Outline.

Prepare for next week's seminar session by attempting the Seminar 5 preparation questions, available in Unit 9.

- README: Summary Measures and Hypothesis Testing Worksheets ☒
- Inference Notes ☒
- Hypothesis Testing Worksheet
- Summary Measures Worksheet
- Unit 8 Examples - Workbooks
- Unit 8 Exercises - Workbooks
- Unit 8 and 9 Data Annexe and Datasets

Research proposal outline



References: Unit 7:

Essential Reading

Kaplan, B. & Maxwell, J.A. (2005) Qualitative Research Methods for Evaluating Computer Information Systems. In: Anderson J.G. & Aydin C.E. (Eds) *Evaluating the Organizational Impact of Healthcare Information Systems. Health Informatics*. New York, NY: Springer.

Backman, R. (2012) *Confounding Variables*.



References: Unit 8:

The reading this week focuses on understanding the various aspects of inferential statistics.

Essential Reading

Berenson, L., Levine, D. & Szabat, K. (2015) *Basic Business Statistics: Concepts and Applications*. 13th Ed. Pearson

- Chapter 1 Section 1.2 p 44-45.
- Chapter 3 Section 3.1 130-135.
- Chapter 3 Section 3.2 p 135-144.
- Chapter 3 Section 3.3 p 148-153.
- Chapter 3 Section 3.4 p 155-157.
- Chapter 3 Section 3.6 p 165-166.
- Chapter 9 Section 9.1 p 336-348.
- Chapter 9 Section 9.2 p 348-353.
- Chapter 9 Section 9.3 p 356-359.
- Chapter 9 Section 9.5 p 364-365.
- Chapter 10 Section 10.1 p 375-384.
- Chapter 10 Section 10.2 p 387-394.
- Chapter 18 Section 18.1 p 735-739.
- Chapter 1 Section 1.1 p 42-43.



References: Unit 9:

Essential Reading

Berenson, L., Levine, D. & Szabat, K. (2015) *Basic Business Statistics: Concepts and Applications*. 13th Ed. Pearson

- Chapter 2 Section 2.2 p 66-68.
- Chapter 2 Section 2.3 p 79-83.
- Chapter 2 Section 2.4 p 85-90.
- Chapter 2 Section 2.5 p 93-95.

Learning for Action (n.d.). Analyzing Qualitative Data.

Additional Reading

Schneider, C. (2018) Making the case: A Qualitative Approach to Studying Social Media Documents in: Bryman, A. & Buchanan D. (Eds) *Unconventional Methodology in Organization and Management Research*. Oxford Scholarship Online.

Business Research Methodology (BRM) (2018) *Qualitative Data Analysis Methods*.

Bhatia, M. (2018) *Your Guide to Qualitative and Quantitative Data Analysis Methods*. Humans of Data.



Questions?

