



University of Essex

Online

Research Methods and Professional Practice – June 2022

Seminar 1

Agenda

- Introduction to Research Methods –organisation, deadlines, resources, assessments
- Unit 1 and 2
- Next Steps



Module Structure

- 12 UNITS
- 3 COMPONENTS OF SUMMATIVE ASSESSMENT
- FORMATIVE ASSESSMENTS (a few)
- 6 SEMINARS
- A MIX OF CASE-STUDY, READINGS, EXERCISES, CLASS PARTICIPATION

* YOUR TUTOR

Tutor Contact

- * Email: anytime
- * Office Hours: Mondays 5pm – 6pm (17.00-18.00hrs BTS) – in my Zoom lounge

>> Outside of this slot it is by appointment

Unit	Seminar Title	Date and Time
1.	Seminar 1 - Introduction	Wednesday 15th June 2022 at 2pm (14:00 BST)
3.	<u>Seminar 2 - Peer review Activity</u>	Wednesday 29th June 2022 at 2pm (14:00 BST)
4.	<u>Seminar 3 - Case Study: Privacy</u>	Tuesday 12th July 2022 at 2pm (14:00 BST)
8.	<u>Seminar 4 - Inferential Statistics Workshop</u>	Wednesday 3rd August 2022 at 2pm (14:00 BST)
9.	<u>Seminar 5 - Workshop on Presenting Results</u>	Wednesday 10th August 2022 at 2pm (14:00 BST)
11.	<u>Seminar 6 - e-Portfolio Preparation</u>	Friday 26th August 2022 at 5pm (17:00 BST)



Module Structure

Link to the calendar:

<https://www.my-course.co.uk/course/view.php?id=8475§ion=2>

Literature Review

- Critically evaluate existing literature, research design and methodology for a chosen topic and so produce a literature review on this topic.
- 2000 words

Weighting

30%

Research Proposal Presentation

Presentation: about 15 minutes, you can work against a minimum of 1500 to a maximum of 2250 words in your oral presentation /transcript.

30%

Individual e-Portfolio

The strict word count limit for the e-portfolio applies to the **reflection only** - **1,000 words**

40%

Unit	Component	Deadline
7	<u>Literature Review</u>	23:55 hrs Monday 1st August 2022
10	<u>Research Proposal Presentation</u>	23:55 hrs Monday 22nd August 2022
12	<u>Individual Module e-Portfolio</u>	23:55 hrs Monday 5th September 2022

Assessment -- Formative

Formative and e-Portfolio Activities

To aid your development of an in-depth understanding of the syllabus, regular formative assessment is provided via case studies, exercises, and reflective commentaries. Furthermore, the formative feedback received will enable you to develop your understanding of what is required for the summative assessments. Although not all of these activities are weighted components that count towards your module grade, they are designed to help you gain a deep understanding of the module content and provide a foundation for understanding.

We recommend that you participate in all formative activities and make frequent entries to your **e-portfolio which is assessed in this module**.

You will find the main e-portfolio and formative activities below. Please make sure that you read the guidance in each unit to fully understand weekly study requirements. Also read the full e-Portfolio guidance for the final submission in unit 12.

Unit(s)	Component	Deadline	e-Portfolio/Formative
1 - 3	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
6	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	e-Portfolio
12	Self Test Quiz	End of unit 12	Formative

Research Methods and Professional Practice – Recap U 1-7

Syllabus Items	Units	Activities
1. Scientific Investigation and Ethics	1	Discussion forum, Reasoning Quiz, Reflective activity - Ethics in ComputingPage
2. Research Questions, the Literature Review and the Research Proposal	2	Discussion forum, Literature Review Guide Questions.
3. Research Methods	3	e-Portfolio Learning Activity
4. Case Studies, Focus Groups and Observations	4	Submit a brief outline of your literature review for formative feedback to aid in Unit7 submission.
5. Interviews and Survey Methods	5	Reflective Activity2
6. Questionnaire Design	6	e-Portfolio update: Data Collection Wiki Activity: Questionnaires
7. Validity and Generalisability in Research	7	Collaborative Discussion 2, e-Portfolio update: Data Collection, Submit a brief outline of your research proposal, Hypothesis Testing worksheet. Literature Review Assignment

Research Methods and Professional Practice - Recap U 8-12

8. Inferential Statistics	8	Hypothesis Testing worksheet, submit a brief outline of your Research Proposal , Exercises
9. Analysing Qualitative Data	9	Discussion forum, Charts Worksheet and Analysis,
10. Research Writing	10	Submit your statistical worksheets Research Proposal Presentation
11. Professional Development – Your e-Portfolio.	11	e-Portfolio Preparation,
12. Project Management and Managing Risk	12	Self Test Quiz, End of Module Assignment - Individual e-Portfolio

Research Methods and Professional Practice -- E- Portfolio

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

Setting up and other info:

<https://www.my-course.co.uk/mod/book/view.php?id=397323>

Why e-portfolios, anyway?

Lorenzo, G. & Ittelson, J. (2005) *An Overview of E-Portfolios*. Educause Learning Initiative. Available from <https://library.educause.edu/resources/2005/1/an-overview-of-eportfolios>

Research Methods and Professional Practice – Grading: 1. LR

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):

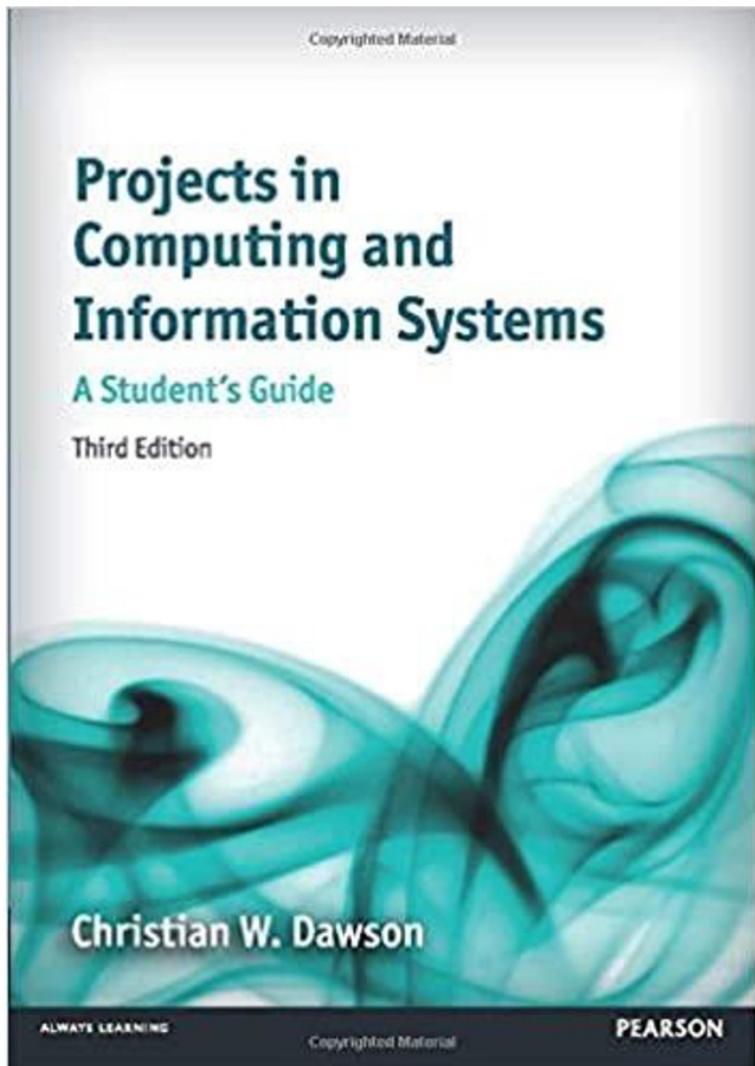
- To provide an overview of current knowledge on the chosen topic. (**Knowledge and Understanding weighted at 30%**)
- To demonstrate an awareness of relevant, current literature. (**Use of Relevant sources weighted at 20%**)
- To highlight similar and contrasting views on your chosen topic. (**Criticality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

Learning Outcomes

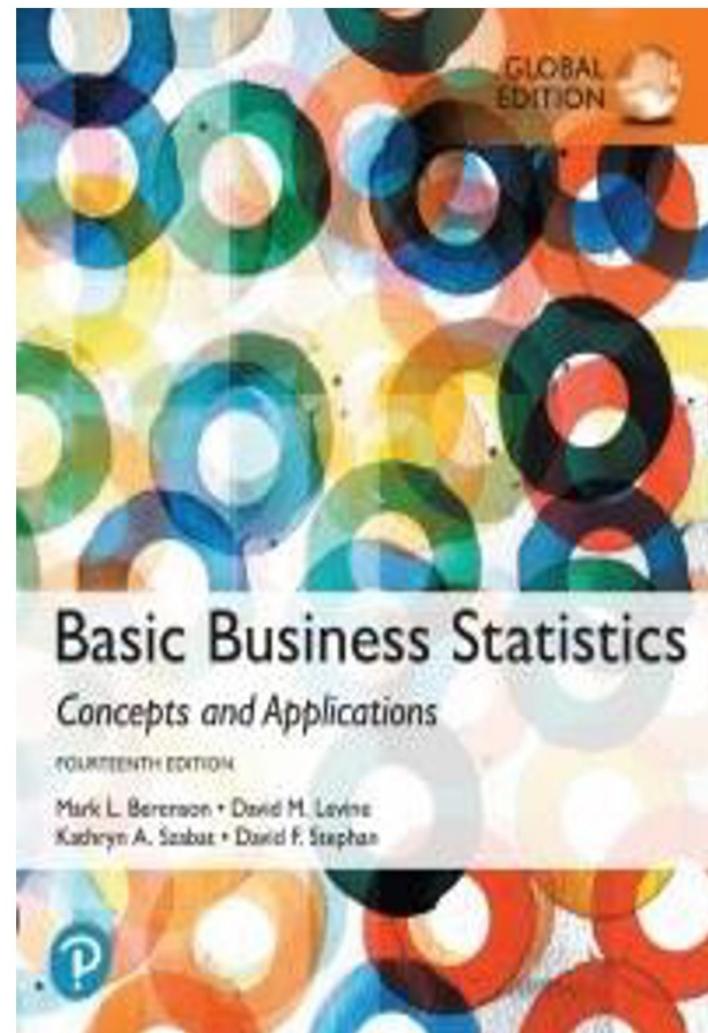
- Appraise the principles of academic investigation, applying them to a research topic in the applicable computing field.
- Evaluate critically existing literature, research design and methodology for the chosen topic, including data analysis processes.

Assessment Criteria	Description of Standard Expectation/Proficiency
Knowledge and understanding of the topic/issues under consideration (30%)	Does your work show comprehensive insight and understanding of the topic? Would it stimulate constructive dialogue, commentary, or a new understanding among the appropriate audience?
Criticality (30%)	Have you clearly analysed and synthesised appropriate ideas/tasks/reading in this piece of work, creating a critically in-depth argument/discussion/analysis/evaluation of the topic?
Use of relevant sources (20%)	Have you provided evidence of extensive reading on the topic(s) through the quality of references used (not just the number of references), showing how each one supports your work?
Structure and Presentation (as detailed in the assessment guidance) (10%)	Your work should be well-structured with minimal errors in spelling, grammar and punctuation. The overall message should be clear.
Academic integrity (10%)	Is there an accurate use of citations and references throughout this piece of work? Have you demonstrated the required integrity in your submission?

Research Methods and Professional Practice



Textbooks



Research Methods and Professional Practice – Reading List

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Research Methods and Professional Practice (RMPP_PCOM7E)

 Created 8 months ago | Updated 7 months ago  Linked to [KP](#)

UoEO PG CS MSc (UoEOCSMSc)

[Table of Contents](#) ▾ [Type: All](#) ▾ [Filter: All](#) ▾ [Citation Style: None](#) ▾

Core Reading ebooks

The core reading for this Module can be found in your Learning Platform.
(Click on the ebook tab, then the ebook cover for access.)

Title: Project in Computing and Information Systems: A Student's Guide

Author(s): Christian W. Dawson

Date of Publication: 2015

Unit 1

Required Reading



[Projects in Computing and Information Systems: A Student's Guide](#)

Book - by Christian W. Dawson - 2015 - **Essential**

 Intellectual Discovery. Read Chapter 2, page 24-25



[Projects in Computing and Information Systems: A Student's Guide](#)

Book - by Christian W. Dawson - 2015 - **Essential**

 Ethical Issues. Read Chapter 2, page 38-40



[Ethics in Qualitative Research](#)

Book - by Tina Miller; Melanie L. Mauthner - 2012 - **Essential**

 Ethical and Legal Issues. Read Chapter 1, 11



[The Ethics of Computing](#) in ACM Computing Surveys

Article - by Bernd Carsten Stahl; Job Timmermans; Brent Daniel Mittelstadt - May 2016 - **Essential**

 Required for e-portfolio activity

Link to the page:

<https://rl.talis.com/3/essex/lists/35087E5F-AD93-74C6-CCD9-BA5FC7C77916.html?lang=en-US>



Research Methods and Professional Practice- Unit 1 _Scientific R

The first question to answer in this module would be “What is the Purpose of Research?”

The 3 main reasons/purposes of research are:

- to explore (familiarise yourself with a topic/situation)
- to describe (describe your findings)
- to explain (answer the question “why?”) (QuestionPro, 2021).

One of the most important approaches in research is the scientific method.

INDUCTIVE/ DEDUCTIVE

Research Methods and Professional Practice

The Difference Between Deductive and Inductive Reasoning

How to tell the difference between these common approaches to problem-solving

By DANIEL MIESSLER in PHILOSOPHY | Read Time: 3 minutes

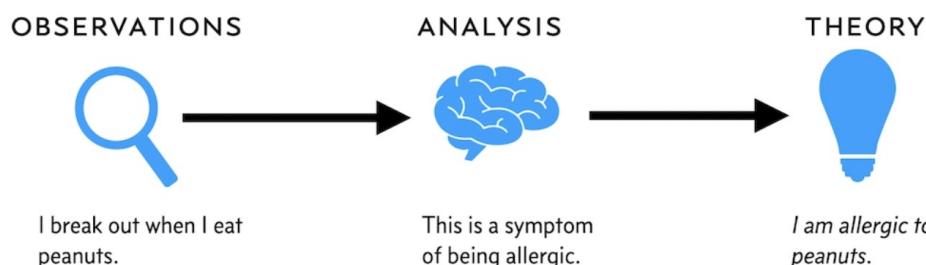
CREATED/UPDATED: SEPTEMBER 23, 2020

[Home](#) / [Philosophy](#) / The Difference Between Deductive and Inductive Reasoning

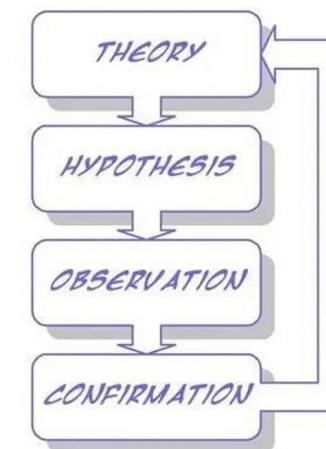
DEDUCTION



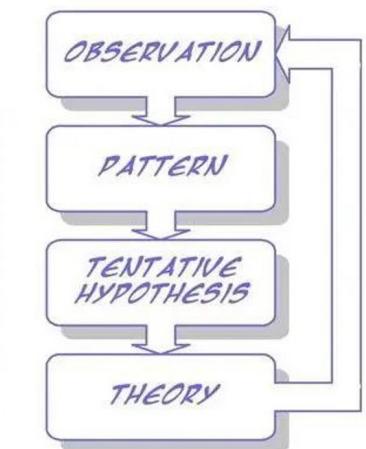
INDUCTION



DEDUCTION



INDUCTION



Research Methods and Professional Practice –Unit 1- Research Ethics

This can be reviewed by focusing on the **key principles** that need to be applied when preparing and carrying out your research project, as described by the Menlo Report (Bailey, 2013):

Respect: If you are using individuals, they must take part voluntarily. You must respect their decision to participate or not (gaining their **consent**). Your participants should also have the right to **anonymity** >> Also: **GDPR** (!)

Beneficence: The balance here is between maximising the benefit you gain from your research and the risk it may pose for the participants.

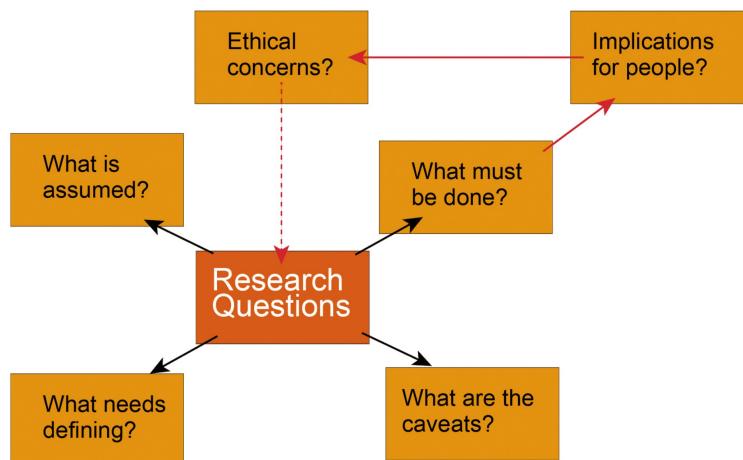
Justice: This relates to the **equal treatment** of your participants, as well as the fair distribution of the benefits of the research.

Respect for Law and Public Interest: A researcher should always engage in **legal due diligence and be accountable for their actions**. Research should be designed, reviewed and undertaken to ensure recognised standards of integrity are met, and quality and transparency are assured.

Research Methods and Professional Practice – Unit 2 RQs

RQs are fundamental to your projects >> define focus, data to collect, methods to apply

Developing research questions is an iterative process evolving with your project.



Is your research question clear? +

Is your research question focused? +

Is your research question complex? -

Research questions should not be answerable with a simple “yes” or “no” or by easily-found facts. They should, instead, require both research and analysis on the part of the writer.



Is your research question feasible? -

Research questions need to be answered and you may explore the question(s) through primary data (we will discuss later on): have you considered challenges with a focus group/accessing people to talk to? Access, costs and time constraints?



Research Methods and Professional Practice – Unit 2 LR

Choosing the topic for your literature review and presentation.

The topic of your literature review can **only** be selected from the pre-determined list of topics areas provided >> [Have a look at the list!](#)

[<https://www.my-course.co.uk/mod/resource/view.php?id=596449>]

Your literature review is due in Unit 7 and you can submit **an outline** for the review in Unit 4.

This outline submission will receive some formative feedback only, to help you in your final submission.

You can use **the same topic for your research proposal presentation**, due in unit 10. (You can also submit an outline of the presentation in Unit 8, for formative feedback only).

>> Make sure to consider the ***LR Checklist*** provided in U 2 page

CAUTION RE: SOURCES >> DO and DON'T

Research Methods and Professional Practice – Unit 2 LR: sources

Web of Science (<http://wok.mimas.ac.uk/>). A database for UK education that covers engineering and science publications (both journals and conferences). It provides a full search facility and ability to download abstracts but you (or your institution) must subscribe to this service.

ACM Association of Computing Machinery (<http://www.acm.org>). Contains a digital library of all material published by the ACM and a guide to computing literature. Their digital library, which contains the ‘full text of every article ever published by ACM and bibliographic citations from major publishers in computing’, can be accessed at <http://dl.acm.org/dl.cfm>.

The Collection of Computer Science Bibliographies (<http://liinwww.ira.uka.de/bibliography/>). According to the site this ‘is a collection of bibliographies of scientific literature in computer science from various sources, covering most aspects of computer science. The bibliographies are updated weekly from their original locations such that you’ll always find the most recent versions here. The collection currently contains more than 2 million references (mostly to journal articles, conference papers and technical reports)’.

IEEE Computer Society (<http://www.computer.org>). The IEEE’s online bibliographic database where you can search for journal articles and conference proceedings. Note that you will have to pay for most of the articles you want to download from this site. Their digital library can be accessed at <http://ieeexplore.ieee.org>.

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Lecture Notes in Computer Science (<http://www.springer.de/comp/lncs>). Springer’s online database containing literature from this series of publications.

DBLP bibliography (<http://dblp.uni-trier.de>). According to the site ‘The DBLP server provides bibliographic information on major computer science journals and proceedings’. It was originally focused on database systems and logic programming (hence the acronym) but it has since expanded to other areas of computer science.

HCI Bibliography (<http://www.hcibib.org>). Dedicated to Human Computer Interaction research. The site is maintained in Canada.

IngentaConnect (<http://www.ingentaconnect.com/>). ‘IngentaConnect offers one of the most comprehensive collections of academic and professional research articles online – some 4.5 million articles from 13,500 publications’.

Neuron AI directory (<http://www.neuron.co.uk/>). Provides links to academic and commercial publications and those primarily within the field of artificial intelligence (expert systems, neural networks, fuzzy logic, etc.).

Free on-line dictionary of computing (<http://foldoc.org/>). Based at Imperial College London, it does what it says.

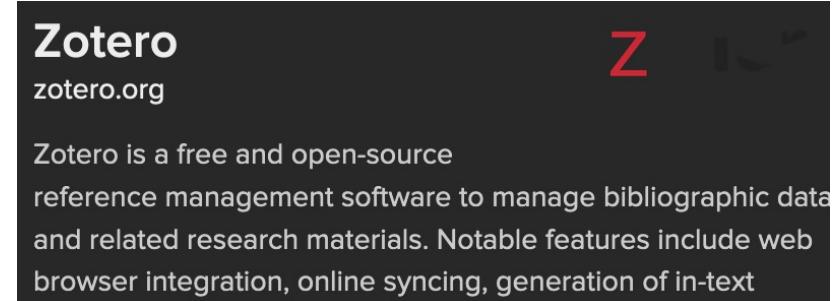
Google Scholar (<http://scholar.google.co.uk/>). Provides an extensive search engine for scholarly literature from a wide range of sources including journal papers, books, theses, abstracts, etc. It provides scholar measures for articles (for example, citation counts) so you can gauge their influence and merit. It also provides links to authors, citations and references.

IBM Systems Journal (<http://www.research.ibm.com/journal/sj/>). Provides access to papers published within this journal.

Research Methods and Professional Practice – Unit 1 -Ref.

Choose ONE tool early in the process

EndNote
(<http://www.endnote.com>)



JabRef
(jabref.sourceforge.net)



Mendeley
(www.mendeley.com)

RefWorks
(www.refworks.com)

Research Methods and Professional Practice – U1-3 Discussion Forum

- Will last for 3 weeks covering units 1, 2 and 3.
- Guidelines for Formative Discussion Responses
 - Follow good netiquette in your discussions
 - Post around 6-10 times over the three-week period.
 - Use the UoEO Harvard reference style.
- Grading: the collaborative discussion will not be assessed, BUT is a component of your e-portfolio which you will submit in unit 12 for summative feedback.



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Questions?

