SUBJECT DESCRIPTIVE FORM

Subject Title: Research Methods and Biostatistics

Subject Code: HTI5155

Credit Value: 3

Date of Submission: Feb 2007

Responsible Staff & Department: Prof Iris Benzie, Prof. Daniel Chow (HTI)

Pre-requisite: Nil

Recommended Background Knowledge: Nil

Exclusions: Nil

Learning Approach:

Contact hours:

- Lectures / Tutorials: 25 hours
- Seminars/Workshop/Case Study/Presentation: 17 hours

Subtotal: 42 hours

Independent study hours:

- Self-study: 40 hours
- Assignments: 60 hours

Subtotal: 100 hours

Total: 142 hours

Assessment (types & weighting):

Course work (100%)

- Data analysis assignment: 30%
- Proposal writing assignment: 40%
- Information gathering/data critique assignment: 30%

Learning Outcomes:

Upon completion of the subject, the student will be able to:

1. demonstrate understanding of the importance of planning and information gathering in research and demonstrate good planning and information gathering skills
2. use a range of information gathering approaches appropriately
3. demonstrate the ability to critically and comprehensively review the scientific literature on a given topic
4. explain different type of research approaches that are used in health sciences
5. perform power calculation and demonstrate understanding of type i and type ii errors and the meaning of one-tail and two-tail p values in planning, performing and evaluating statistical analyses of research data
6. select and use the appropriate statistical tool(s) and presentation method(s) for a given set of research data and purpose
7. demonstrate understanding of the key elements of a research proposal
8. discuss, evaluate and summarize given research findings
9. demonstrate knowledge, understanding and application of accepted ethical principles in research involving human subjects or animals
10. present a research proposal and research findings in the appropriate manner for communication of the scientific purpose/plan and the results/message
Syllabus/topics:

1. Different types of research and approaches to research in health sciences: qualitative and quantitative research; observational; cross-sectional; case-control, nested case control; prospective; intervention studies

2. Information sources and reviewing the literature; acknowledging sources; paraphrasing and avoiding plagiarism; critically reviewing what’s out there

3. Identifying the problem, posing the question, hypothesis testing – what do you want to do and why?

4. Research design; is it fit for purpose? is the project feasible?

5. Power calculations, Type I and Type II errors; types of data, descriptive and inferential statistics; selecting statistical methods of data analysis; parametric and non-parametric; similarities, differences and correlations: P values; does it all fit together and what does it mean?

6. Ethical principles and approval procedures: what are you doing, why and to whom or what?

7. Questionnaire design and evaluation; doing surveys and avoiding leading questions

8. Proposal writing: putting your ideas together

9. Presenting and evaluating data: what have you found? what does it mean?

10. Critical analysis of data and communicating the message: are the conclusions warranted? Who needs to know the findings and how best to tell them?

Recommended Reading List:


