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THE UNIVERSITY OF
MELBOURNE

A matrix approach to curriculum review and development

C Bennett

ANAPHI T&L Forum
Sept 2007

Outline

Context

Challenge

Epidemiology Curriculum Review

Matrix

The Graduate Attributes

- academically excellent
- knowledgeable across disciplines
- leaders in communities
- attuned to cultural diversity
- equipped to become active global citizens

New Emphasis on KT

“opportunities for international experience and greater engagement with industry and the community through activities such as work placements, internships, online study opportunities with offshore institutions, study abroad and exchange programs”

Delivering Graduate Attributes

- Curriculum → Experience
- Knowledge centred → Competency-based
- Multidisciplinary → Interdisciplinary
- **What** we teach → **How** we teach
- Subject Outlines (linear) → Matrix (multidimensional)
- Tokenism → Embedded

Epidemiology



Disciplinary

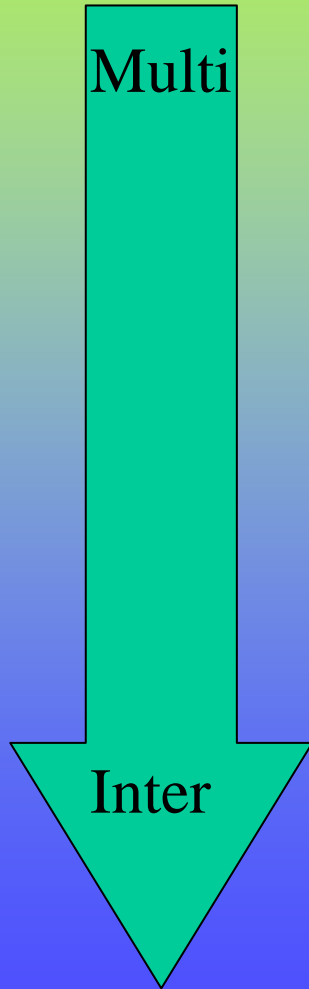
Multi

Inter

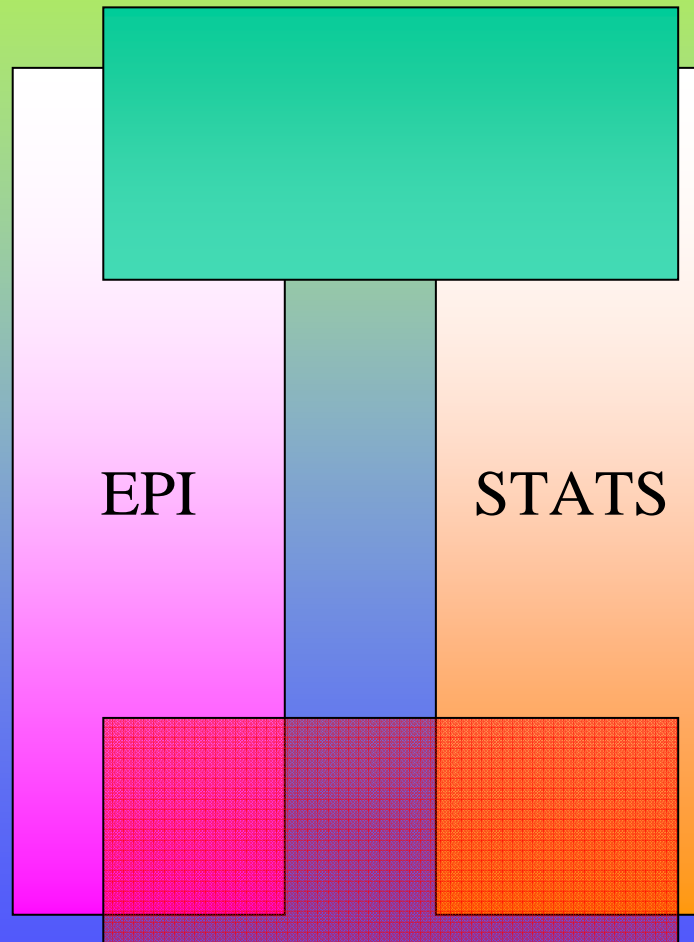
EPI

STATS

L&T Advisory Group



Epidemiology



INDUCTION

CAPSTONE

Curriculum Matrix – eg 1

Content Headings	Learning Objectives	Key Skills	Mapped to Assessment Task
<p>WEEK 1 (4 contact hours each wk)</p> <p>1. Intro/causation</p> <p>a. Epi is...</p> <p>b. Exemplar guest lecture (Terry Dwyer & SIDS)</p> <p>c. An Epidemiologist is... (<i>input from epidemiological practitioners, potential employers (ie MEpi T&L Advisory Group)</i>)</p> <p>d. Introduction to quantitative & qualitative approaches in health research</p> <p>e. Descriptive Vs Analytic Studies</p> <p>f. Association Vs Causation</p> <p>g. Causal inference</p> <p>Ref Webb Ch1; Sterne Ch 2/3</p>	<p>Course/Stream Level: To outline the overall objectives of this subject and the subjects that comprise the core of the stream/course, and the timetable, teaching/assessment strategies, articulation between subjects etc</p> <p>This session: Primary To understand the:</p> <ul style="list-style-type: none"> • definition of epidemiology • place of epidemiology in health research and public health practice • principles of epidemiology <p>Secondary To be introduced to:</p> <ul style="list-style-type: none"> • the application of epi & am theory & skills in research design, conduct and appraisal • the basic principles of disease causation and causal inference • the value of descriptive and analytic studies • become familiar with the language and terminology used in epidemiology 	<ul style="list-style-type: none"> • Understand context and relevance of subject & course/stream content (research, clinical practice, workplace etc) • Establish realistic expectations of subject, and a framework for acquiring and applying epidemiological theory and skills in practice • Discuss different methodological approaches with a basic understanding of when and where different approaches are of most use/validity • Apply component causal framework (Rothman) to a complex disease process 	<p>Practicum</p> <ul style="list-style-type: none"> • Introductions and discussion of Subject and course/stream aims • Small group work to explore and apply the concepts and frameworks used to investigate disease causation, and discuss the strengths and limitations of different research approaches • Note - there is no computer-based component in this week <p>Assessment (Assignment handed out at start of subject, due week 9 of semester – inc Easter break)</p> <ul style="list-style-type: none"> • Demonstrated contextualised understanding of the contribution of quantitative epidemiology • Demonstrated understanding of the complexity of disease causation • Ability to apply a component cause framework to describe and understand disease causation <p>Take Home Task: Set reading each week plus....</p>

Curriculum Matrix – eg 2

Content Headings	Learning Objectives - theory	Learning Objectives - skills	Practical Elements and Assessment Task(s)
<p>Key content mapped to subject outline for each block (session for ½ semester, or 1/2 day for 5-day intensive subjects)</p>	<p>The key take home messages and Primary Learning Objectives (focus of session and directly linked to skills session and assessment task) & Secondary (eg concepts that will be further developed in later sessions/subjects)</p>	<p>The practical skills to be developed in seminar &/or practical session tasks</p>	<p>The applied exercises and tasks and the mapping of specific learning objectives to Assessment Task(s)</p>
<p>Day 1 A: Screening and diagnostic testing a. Rationale for establishing screening programs and selecting diagnostic tests b. Interpretation and computation of estimates used to evaluate screening and diagnostic test c. Design and methodology in evaluation of screening and diagnostic tests</p>	<p>Primary To understand: • Design, potential sources of biases and analytical techniques in studies related to screening and diagnostic testing • Rationale mechanisms and success of a screening program • Relevance of these tests at individual and population levels.</p>	<ul style="list-style-type: none"> •Develop skills to critically appraise and report on literature related to screening and diagnostic testing •Be able to compute and interpret estimates used to evaluate screening & diagnostic tests 	<p>Practicum Practical work on critical appraisal of studies related screening and diagnostic testing and screening programs</p>
<p>Day 2 B1: Developing a study design a. Components of study design & process of developing a design b. Developing a research question and identifying the most suitable study design c. Developing study protocol</p>	<p>Primary To understand: • the process of developing a study •the structure and the elements of a study proposal Secondary •how to critically appraise study designs</p>	<ul style="list-style-type: none"> •Acquire and demonstrate skills to design a study •Acquire and demonstrate skills to critically appraise study designs 	<p>Practicum Computer lab session on ROC curve analysis (related to day 1) CL assessment to be handed in week 2 of the course (20%) •Demonstrated understanding of computing and interpreting relevant estimates Designing a study assignment (handed in 3 weeks > block) •Demonstrated contextualised understanding of designing a study</p>

Learning Outcomes

- Advisory Group
- Engineering concept and skill synthesis into curriculum
 - Assessment
 - Induction (language, orientation)
 - Capstone (synthesis, application)
- Importance of Idea Dominance
- Matrix
 - Teaching & Learning Processes
 - Subject Development, Review, Articulation
 - Captures student and teacher experience
- Challenge → Advantage