

# Psychology Colloquium/ Honours Advanced Seminar

## It does not take much to be distracted

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3:30 pm, Friday, 12<sup>th</sup> March 2010

MLG 13, Lower Ground Floor, M Block (Coffs Harbour)

Video-conferenced to Lecture Hall P158 (Lismore)

All welcome to attend

I measure electrical activity in the brain, using electroencephalography (EEG), while a person performs various memory, attentional, or perceptual tasks. One line of my research is aimed at understanding how we make sense of and predict the world. For example, as I sit at my desk, I can see such things as the computer screen and the keyboard, I can hear the sounds outside and inside the office, and I can type on the keyboard. How is it that I know the screen will still be there the next time I look at it, how can I distinguish the sounds outside from the sounds inside, and how can I guide my fingers onto specific keys and know that I have pressed them? These questions relate to the predictability of the world, to the passage of time in it, and to notions of cause and effect. To begin to answer these questions, I use a very simple model of one aspect of the world and measure how people react to it. This simple model is the system that automatically encodes and monitors rules inherent in what we hear. For example, I might ask people to listen to a sequence of sounds and to press one key when they hear a short tone and another when they hear a long tone. But if I occasionally make some of the sounds have a different pitch from the others, I can cause people to make errors and to respond much more slowly, revealing the effects of rules, in this case about pitch, they have learned unconsciously. Moreover, I can measure brain activity associated with sounds that both follow and break the rules, giving clues to the regions of the brain involved in predicting the world and in being distracted by it.