



## Exploring the Value of the Web in an Undergraduate Immunology Program

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### The Program

Tertiary science education aims to provide students not only with a sound knowledge base and associated technical competencies, but also with investigative skills and a thirst for knowledge which long outlives their time as university students. Paradoxically, graduates of science programs have been praised for possessing the first two but condemned for their lack of the latter.

This paper details the development of a third-year subject which has, over a period of four years, evolved to meet the need for cultivating such competencies. The web browser is but one tool in a holistic approach to student learning and is directed primarily at (a) providing students with a framework to conceptualize their learning, (b) facilitating access to information outside traditional “textbook” boundaries, but at the same time maintaining the focus of their efforts. Other tools used to achieve the learning objectives are accessing and critiquing research papers; group discussions and presentations of issues raised in research papers; solutions of laboratory based problems, including development of protocol, organizing laboratory equipment and consumables, conduct of experimental work, subsequent analysis and presentation. All strategies are directed at developing (a) investigative and analytical skills, (b) capacity for critical thinking and communication and defence of such critique, and (c) teamwork.

In four years close to 90 students have undertaken the course. All students have been given exit questionnaires to provide information on their perceptions of effectiveness and ideas for modifications for all components of the subject. In the light of such comments, changes have been made to both the subject structure and the web material. In the former, small group discussions were introduced and the number of papers reduced to provide time for more in-depth analysis. The web browser has had a number of sites added and a spoken glossary added. It is not complete; and it is desired, time and finances permitting, to add video clips and more stimulating visuals.

Students using the web site are often tempted to download and print out reams of material — of dubious value, given the unique way such material is organised. To alleviate this, students are provided with a coherent text-equivalent. The web now becomes more a framework for visualizing the field of immunology and a jump-off site for exploration. It is providing the Big Picture.

From the perspective of both staff and students, the web browser is a small but valuable part of a busy interactive subject. Cost, once the site has been established, is restricted to modifications and embellishments. On the whole, the subject has benefitted from such a resource, but it has not replaced the strong interpersonal approach generated through staff:student and student:student interactions.

Web address: <http://edtech.nepean.uws.edu.au/science/lci/index.html>