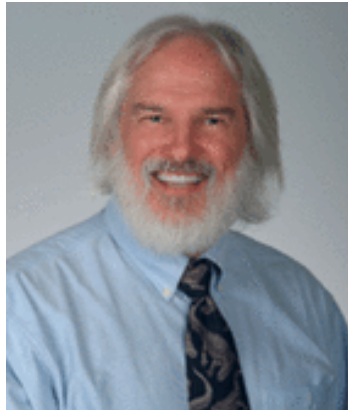


## Curriculum Vitae: Professor Louis J Guillette Jr

Louis J Guillette Jr is professor of Obstetrics and Gynaecology at the Medical University of South Carolina, USA, as well as Professor of Marine Biomedicine and Environmental Sciences at the same institution. Prof Guillette Jr is also Director of the Marine Biomedicine and Environmental Science Center and an Extraordinary Professor of Toxicology and Pharmacology at the Faculty of Veterinary Science, University of Pretoria, South Africa.



Prof Louis J Guillette Jr

Prof Guillette was born in Texas, USA, in 1954. He completed his Bachelor of Science degree at New Mexico Highlands University, Las Vegas, in 1976, majoring in biology. Prof Guillette went on to complete his master's and PhD degrees at the University of Colorado in Boulder, receiving the prestigious University of Colorado Annual Creative Dissertation Award in 1981.

In 1997, Prof Guillette was elected a Fellow of the American Association for the Advancement of Science and, a year later, he was recognised as the University of Florida Teacher/Scholar of the Year. Prof Guillette was awarded the Howard Hughes Medical Institute professorship in 2006 and received the Heinz Award for the Environment (Heinz Science Medal) in 2011.

Prof Guillette has directed 23 doctoral dissertations and 12 postdoctoral fellows. He has also been research advisor to many undergraduate and honours students. His publications include 283 refereed papers; 43 book chapters and five edited books.

The research focus of Prof Guillette and his group is "the mechanisms by which environmental factors influence the evolution, development and functioning of the reproduction system in vertebrates". During the last 15 years, his work has focused on the growing evidence that environmental contaminants, such as pesticides, industrial chemicals and personal care products, are able to mimic chemical messengers and signalling systems in the body, thereby altering gene expression, which in turn results in the altered functioning of reproductive and endocrine systems.

## Sir Arnold Theiler Memorial Lecture

### Predisposition for health or disease: The 'new' genetics of environmental health

*Louis J Guillette Jr, PhD*

Professor, Department of Obstetrics and Gynecology, and Director, Marine Biomedicine and Environmental Sciences, Medical University of South Carolina

Endowed Chair and Director, Center for Marine Genomics, Hollings Marine Laboratory

Wildlife, domesticated and laboratory animals have been used to predict detrimental human health effects from environmental variables for decades. There is growing concern, however, about exposure to low levels of "endocrine-active" contaminants early in embryonic development. Coupled with altered climate, this can lead to altered phenotypes and disease. Although each species is unique, molecular, cellular and physiological systems are conserved, allowing insight into the process of human health from "sentinel species" studies. A large and growing literature has now demonstrated that classical gene mutations account for less than 20% of known diseases (in many cases as low as 8% to 10%); linear-dose response curves poorly predict adverse responses to low levels of environmental contamination and exposure to complex mixtures; and altered gene expression, via epigenetic mechanisms, can be induced by varying diets and low-level exposure to various environmental contaminants, including metals and organics, and are being readily linked to predisposition for disease. This talk will review, in part, the work done by my laboratory on humans, as well as wildlife species, such as the American alligator and Nile crocodile, examining the effects of various environmental contaminants on the development and functioning of the endocrine and reproductive systems from the genetic to organismal level. I will relate this work to implications for modern veterinary and human health care, as well as environmental management and conservation.