1033-92-119   **R. Drew Pasteur*** (`rdpasteu@math.ncsu.edu`), Department of Mathematics, Box 8205, NC State University, Raleigh, NC 27695-8205, and **James F. Selgrade** (`selgrade@math.ncsu.edu`). *Stability and Bifurcations of a Differential Equation Model for Hormonal Control of the Menstrual Cycle.* Preliminary report.

Inhibin is one of several hormones which collectively regulate the human female reproductive endocrine system. In recent years, physiologists have been able to separately assay two forms of inhibin. After fitting new data to an existing delay differential equation model of the human menstrual cycle, we consider the existence and stability of equilibrium and periodic solutions, and also analyze bifurcations. Because the introduction of exogenous hormones, whether pharmacological or environmental, can have significant effects on the menstrual cycle, we model the effects of these external hormones. Finally, we introduce an expanded model that more fully accounts for the actions of both forms of inhibin. (Received September 07, 2007)