1086-92-2098 **Alison Margolskee*** (amargol@ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695, and **James Selgrade** (selgrade@math.ncsu.edu), Department of Mathematics, North Carolina State University, Raleigh, NC 27695. *A Dynamical Model for the Human Menstrual Cycle that Simulates the Key Hormonal Changes of the Menopausal Transition.*

A system of 16 nonlinear differential equations and 66 parameters is developed to model the hormonal regulation of the female reproductive cycle applying to women from age 20 through 51. The model simulates the declining pool of primordial follicles and resulting decrease in antimullerian hormone (AMH) and follicular phase inhibin B (InhB), and increase in follicular phase follicle stimulating hormone (FSH). These hormone changes are markers of declining ovarian function and can be attributed to the diminishing pool of the primordial follicles. (Received September 24, 2012)