TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Wednesday, 10 February 2016, 4:00 p.m.
Room 617 Wachman Hall

(refreshments and social at 3:45 p.m)

From Physiological to Pathological: Modeling Ovulatory Function and Dysfunction in Women

by Erica Graham
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Abstract. Reproductive hormones belong to a tightly regulated system of feedback between the brain and ovaries. Cross-talk between different hormones set the stage for the oscillatory behavior characteristic of the menstrual cycle. In the case of polycystic ovary syndrome (PCOS), a common cause of infertility, increased ovarian androgen production can disrupt the cycle. Further, elevated insulin is an important cause of the change in androgens. In this talk, we develop a mathematical model of the normo-ovulatory cycle and its regulatory components. We then discuss the model's ability to produce ovulatory dysfunction under pathological circumstances, i.e. insulin-dependent changes in androgens.