**Special Topics Course:**

# Intent to Schedule

Special topics courses provide an opportunity to offer a course on a trial basis, or in response to unique opportunities for faculty and resources. Special topics courses are intended to be offered only once prior to full governance approval. A special topics course may be offered in two consecutive semesters (Fall/Spring of one academic year, or Spring/Fall of consecutive academic years), as long as it is submitted for governance approval before the start of the second semester.

Special topics courses at the graduate level must be approved by the Dean of Graduate Studies before they will be issued a schedule number. Please submit this form, along with a syllabus, *two weeks before the schedule for the relevant semester is due to the collegiate dean’s office*.

Will this course be offered

Semester \_\_Spring 2017\_\_\_\_\_\_ through Continuing Education no

Program Biology\_\_\_ Credits 3

Course \_\_\_\_\_Advanced Data Analysis for Biology\_\_\_\_\_\_\_\_\_

Prerequisites BIOL 607 or SFE 601 or equivalent

Faculty Byrnes

Day and time \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_T,Th 1-3:30\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Course Description:

This course will cover the advanced statistical modeling techniques needed for students investigating complex biological systems. The course aims to have students focus on thinking about the biological processes that they are studying in their research and how to translate them into statistical models of realistic complexity. This includes models that deal with autocorrelation, mixed models, multivariate Structrual Equation Models with latent variables, and more. We will also emphasize Bayesian inferential techniques, as they have proven to be powerful and flexible in a wide variety of situations. They are also often philosophically aligned with scientists goals, perhaps more often than frequentist techniques. The course will take a hands-on computational approach, allowing students to first approach concepts theoretically, and then implement them in the programming language R.

## A copy of the syllabus for the proposed course MUST accompany this form.

Graduate Program Director: Date

Revised 9/04