

Course Number and Title

ZOO6927 Fall2022: Special Topics, State-Space models in Ecology

Catalog Description

This is an advanced graduate level seminar in statistical ecology with an emphasis on hierarchical statistical models in ecology

Credit Hours

1 credit hours

Pre-requisites and Co-requisites

Either Statistical Ecology taught by JM Ponciano or Bayesian Statistics taught by Denis Valle.

Course Objectives

- To understand what are state space models in Ecology
- To learn about the multiple applications of these models to ecological problems
- To learn how to build and specify a state space model
- To learn how to carry statistical inference for a state space model
- To understand the many caveats and problems related to state space model statistical inference

Instructor Information

Name: José Miguel Ponciano

Office location: Carr Hall 309 and 309A

Telephone: (352)-392-2784

E-mail addresses: josemi@ufl.edu

Office hours: by appointment, Carr 309

Course Meeting Time(s)

T | Period7 (1:55 PM – 2:45 PM)

Course Meeting Location(s)

Meetings face to face at BAR 211

Recommended Materials**Textbooks or Other Readings (Not required)**

Rice 1995. Mathematical Statistics.

Pielou, E.C. 1969. An introduction to mathematical ecology

Boswell, M.T., Ord, J.K. and G.P. Patil. 1979. Chance mechanisms underlying univariate distributions. In "Statistical Distributions in Ecological Work", pp 3-156. International Cooperative Publishing House.

Ewens, W. 2004. Mathematical Population Genetics 1- Theoretical Introduction. Springer Verlag.

Readings

Required:

Course Website

Course materials and related information will be posted on the course E-Learning website at <http://lss.at.ufl.edu>. You are responsible for all announcements made in class and/or posted on the course website for this course.

Software (Required)

R, freely distributed at <http://www.r-project.org>

Course Outline

Every week we will read and discuss one or part of one key journal paper or book chapter on state space models. Every week I will present one example with code illustrating the weekly contents. Students will be required to participate by reading, running small code examples in R and in Jags, asking questions and engaging in productive discussions with the rest of the class.

University policy and resources

College Policy on Zoom Presence

University policy gives students the right to opt out of audio and video participation in classroom Zoom sessions that are being recorded. Also, in non-recorded classroom Zoom sessions, it is best practice not to require students to have their camera and audio on, since they may face a number of challenges – technical or otherwise – that make this kind of participation difficult or undesirable. For this reason, instructors should consider allowing alternative forms of participation, such as chat and blog entries or, when necessary, audio-only presence. In the rare case where an instructor deems both audio and video participation to be necessary (as in foreign language classrooms), this must be approved by the unit chair/director and by the college, and this requirement must be explicitly disclosed in the course syllabus.



Grading

- Class Participation and weekly assignments: 100 % of final grade. Assignments will consider the fact that this is a one credit course. Trying and active participation, rather than successful completion of an assignment or solution of a problem will be evaluated.

Grading Scale

Point Range (%)	Letter Grade	GPA equivalent
≥ 90.00	A	4.0
86.7 – 89.9	A-	3.67
83.3 – 86.6	B+	3.33
80.0 – 83.2	B	3.0
76.7 – 79.9	B-	2.67
73.3 – 76.6	C+	2.33
70.0 – 73.2	C	2.0
66.7 – 69.9	C-	1.67
63.3 – 66.6	D+	1.33
60.0 – 56.7	D	1.0
56.7 – 53.3	D-	0.67
< 56.7	E	0

Note that a “C-” will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html>

Grade Curve Policy

No grading curve

Attendance and make-ups

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

If you are experiencing COVID-19 symptoms ([click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms](#). Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. Refer to the above link for more information on the university’s attendance policy.

Accommodations

Students who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/.

Academic Integrity

"UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Each student is responsible for reviewing and adhering to the UF Student Honor Code:

<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>. If you witness any instances of academic dishonesty, please notify your instructor, TA, or the Dean of Students Office (352-392-1261). I

encourage students to work together and to help one another master the material. You can collect data together, help each other in the field, discuss ideas, practice presentations in front of one another, make up practice exams, critique drafts of each other's reports, etc. Despite this "group learning", the final product that you turn in for grading must reflect your own work. Any contribution from another individual must be credited (e.g., include an acknowledgement section that says "I thank person X and person Y for their helpful comments on a previous draft, and person Z for providing insights about differential equations.").

Resources Available to Students

Health and Wellness

- *U Matter, We Care*: umatter@ufl.edu; 392-1575. Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.
- *Counseling and Wellness Center*: <http://www.counseling.ufl.edu/cwc/Default.aspx>; 392-1575
- *Sexual Assault Recovery Services (SARS)*: Student Health Care Center; 392-1161
- *University Police Department*: <http://www.police.ufl.edu/>; 392-1111 (911 for emergencies)

Academic Resources

- *E-learning technical support*: Learningsupport@ufl.edu; <https://lss.at.ufl.edu/help.shtml>; 352-392-4357 (opt. 2)
- *Career Resource Center*: Reitz Union; <http://www.crc.ufl.edu/>; 392-1601
- *Library Support*: <http://cms.uflib.ufl.edu/ask>
- *Teaching Center*: Broward Hall; 392-2010 or 392-6420
- *Writing Studio*: 302 Tigert Hall; <http://writing.ufl.edu/writing-studio/>; 846-1138
- **Accommodations for Students with Disabilities**
 - Students who require accommodations for a disability must contact the UF Disability Resource Center (<https://www.dso.ufl.edu/drc>) to request an Accommodation Letter. No accommodations are available to students until the letter is provided to the instructor. Once your instructor receives your letter, your instructor and TA will be happy to work with you to arrange the necessary accommodations.

Procedure for Conflict Resolution

Any classroom issues, disagreements or grade disputes should be discussed first between the instructor and the student. If the problem cannot be resolved, please contact the (Under)Graduate Coordinator or the Department Chair. Be prepared to provide documentation of the problem, as well as all graded materials for the semester. Issues that cannot be resolved departmentally will be referred to the University Ombuds Office (<http://www.ombuds.ufl.edu>; 392-1308) or the Dean of Students Office (<http://www.dso.ufl.edu>; 392-1261). For further information refer to https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf (for residential classes) or <http://www.distance.ufl.edu/student-complaintprocess> (for online classes).

Software use

All faculty, staff and student of the University are required and expected to obey laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.