

**BSC 4933/6932:**

**Community Ecology**

CRN 19113/17470, Section #601/603, Credit Hours: 3

**COURSE SYLLABUS**

Semester: Spring 2025

Class Meeting Days: M, W

Class Meeting Time: 3:30 – 4:45 pm

Class Meeting Location: DAV 260

Instructor: Dr. Brian Maitner

Office Location: DAV 226

Office Hours: By appointment

Email: bmaitner@usf.edu

# University Course Description

An overview of key concepts in community ecology including diversity patterns, species interactions, interaction networks, coexistence, community assembly, trait-based ecology, and the effects of spatial and temporal variation.

# Course Prerequisites

Undergraduate Students**:** PCB 3043 or equivalent, or consent of instructor.

Graduate Students: None

# Course Purpose

Community ecology is focused on biological diversity, including its distribution, origin, maintenance, and consequences. Historically, much of this work has focused on understanding current biodiversity, but with the increasing impacts of global change, community ecology is expanding to place greater emphasis on prediction and forecasting. Further, community ecology concepts and tools are increasingly being integrated into other fields: global climate models integrate plant traits and distributions, human health and medicine use tools from community ecology to understand disease spread and coexistence, agriculture uses community ecology ideas to understand productivity and pest dynamics, conservation biology and ecological restoration are informed by community ecology (and provide experimental tests of community ecology theory), community ecology has reshaped our understanding of human history and anthropology, and even the business world is increasingly interested in community ecology as the carbon and biodiversity credit markets grow.

# Course Format

Classes will be a combination of lecture, discussion, and student presentations. Assignments are designed to (1) reinforce and expand upon concepts and ideas from class, (2) encourage students to better understand their own study system (or a system of their choice) through the lens of community ecology, and (3) strengthen skills that are important for success in the natural sciences (and related fields).

# Student Learning Outcomes

* Describe some of the major patterns that community ecology seeks to explain
* Describe major theoretical idea/hypotheses/concepts in community ecology
* Propose studies that could tease apart different mechanisms underlying communities
* Evaluate the strengths and weaknesses of different approaches/tools
* Apply the concepts of community ecology to your own work

# Required Texts and/or Readings and Course Materials

* Community Ecology (2nd Edition) by Gary G. Mittelbach and Brian J. McGill (ISBN: 0198835868)

In addition to this text, students will select readings from the scientific literature of their choosing.

# Grading Scale

Grading Scale (%)

90-100 A

80 - 89 B

70 - 79 C

60 - 69 D

0 - 59 F

# Grade Categories and Weights

**Graded Items Percent of Final Grade**

Projects (4x) 40%

In-class quizzes 10%

Midterm 10%

Final 10%

Paper presentation assignments (2x) 10%

Conceptual Figure Assignment 5%

Network Assignment 5%

Group Presentation Assignment 5%

TBD Assignment 5%

# Projects

Each project will focus on linking your own research (or a topic of your choice) to the content covered in the course. Students will identify and read relevant publications, and use these in producing their submissions. Project submissions be relatively short (*e.g.*, 2 - 4 pages, double spaced, not counting references), and the formatting will follow common ecology standards (*e.g.*, submissions may be expected to be written as “Introduction” sections for a journal article). In addition to providing a greater understanding of the course material in the context of your own research, these projects are designed to give you practice with important skills such as finding papers, reading and analyzing publications, and scientific writing.

# In-class Quizzes

Short (only a few questions) in-class quizzes will be given at the start of class each day. The goal of these quizzes is to assess how well students are understanding the material before we get to the projects, assignments, or midterms. By conducting frequent assessments of understanding, students can identify any areas they might need to focus on and the instructor can identify any topics we should revisit as a class. The lowest two quiz scores will be dropped.

**Midterm and Final**

Pretty much what you probably expect. These will be comprehensive, and may include questions that have been previously included in quizzes.

# Paper presentation assignments

Students will select a publication that is relevant to the topic (and where possible, their own research or study system) and prepare a short, 2-slide presentation about it. Each presentation will consist of (1) a slide using graphics made by the student that explains what was done in the study, and (2) a slide highlighting the critical finding(s) of the paper (which may include figures from the study). Students are free to select papers they already plan to be reading for the course (e.g., papers they are using for a project). The goals of these presentations are to provide you with experience related to (a) reading publications and distilling them into their key points, (b) thinking about how to most effectively communicate using slides, and (c) presenting in front of your peers. These presentations also provide a way for us all to be exposed to research we might otherwise not have come across.

**Conceptual Figure Assignment**

Students will select a paper that tests a Biodiversity-Ecosystem Functioning hypothesis (preferably related to their own study system, where possible) and design a conceptual figure to show either a) what the proposed mechanism being tested is, b) how the experiment was conducted, or c) both. Assignments will be submitted as a figure and caption. Conceptual figures are an excellent, and under-utilized, way to convey information in papers, talks, and even grant applications. The goal of this assignment is to provide you with practice designing conceptual figures as well as to help you better understand how Biodiversity-Ecosystem Functioning studies are conducted.

**Network Assignment**

TBD

**Patchy Environments/ Metacommunities Assignment**

TBD

**Group Presentation Assignment**

This assignment focuses on the variable ecosystems we have in Florida. Students will work in groups of their choosing (or individually) and will select a variable ecosystem in Florida. Students will prepare some sort of product that explains to a lay audience why variability in an ecosystem is important. Where applicable, students should also refer to any impacts of changing variability.

This is open to student creativity and can be anything that can convey information. Video, presentation, board game, comic strip, poetry anthology, diorama, whatever. Bonus points for creativity.

# Instructor Feedback Policy & Grade Dissemination

I’ll aim to have work graded within two weeks of the assignment closing date. In the spirit of fairness, if I fail to meet this deadline, I’ll allow students to submit an assignment of their choosing equivalently late. For example, if it takes me three weeks to grade your conceptual figure assignment, I won’t take off points for your next project being up to one week late.

# Course Schedule.

| **Date** | **Subject** | **Due** |
| --- | --- | --- |
| Jan 13 M | Syllabus,  Paper Presentation assignment,  Project 1: Diversity Patterns,  Intro to Community Ecology |  |
| Jan 15 W | Diversity Patterns   * Gradient examples * Measuring Diversity * Types of Diversity |  |
| Jan 20 M | Holiday, No Class |  |
| Jan 22 W | Diversity Patterns   * Species Area Relationship * Species Abundance Distribution |  |
| Jan 27 M | Diversity Patterns   * Drivers of DIversity Gradients |  |
| Jan 29 W | Conceptual figure assignment,  Diversity Patterns | **Paper presentation (in class)** |
| Feb 3 M | Biodiversity and Ecosystem Functioning |  |
| Feb 5 W | Biodiversity and Ecosystem Functioning | **Project 1 (due Friday)** |
| Feb 10 M | Project 2: Competition, Coexistence, etc.,  Density Dependence |  |
| Feb 12 W | Predator-Prey | **Conceptual Figure (due Friday)** |
| Feb 17 M | Competition |  |
| Feb 19 W | Coexistence |  |
| Feb 24 M | Review |  |
| Feb 26 W | Midterm | **Project 2 (due Friday)** |
| March 3 M | Interaction networks,  Dr.Tanya Strydom guest lecture |  |
| March 5 W | Interaction networks,  Network Assignment,  Dr.Tanya Strydom guest lecture |  |
| March 10 M | Community assembly |  |
| March 12 W | Paper presentation 2,  Check-in and feedback,  Community assembly | check-in and feedback from students,  **Network Assignment (due Friday)** |
| March 17 M | N/A - Spring Break |  |
| March 19 W | N/A - Spring Break |  |
| March 24 M | Community assembly |  |
| March 26 W | Community assembly | **Paper presentation 2 (in class)** |
| March 31 M | Project 3,  Trait-based ecology |  |
| April 2 W | Trait-based ecology |  |
| April 7 M | Trait-based ecology |  |
| April 9 W | Trait-based ecology | **Project 3 (due Friday)** |
| April 14 M | TBD Assignment,  Project 4,  Patchy environments |  |
| April 16 W | Patchy environments |  |
| April 21 M | Group Presentation Assignment,  Metacommunities |  |
| April 23 W | Metacommunities | **TBD Assignment (due Friday)** |
| April 28 M | Variable environments |  |
| April 30 W | Variable environments | **Group presentation (in class)** |
| Week of May 5 | Final | **Project 4 (due Friday)** |

\* Note: The Schedule is subject to revision

# USF Core Syllabus Policies

USF has a set of central policies related to student recording class sessions, academic integrity and grievances, student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, and sexual harassment that **apply to all courses at USF**. Be sure to review these online: [usf.edu/provost/faculty-success/resources-policies-forms/core-syllabus-policy-statements.aspx](https://www.usf.edu/provost/faculty-success/resources-policies-forms/core-syllabus-policy-statements.aspx)

# Course Policies: Grades

**Late Work Policy**:

Students should aim to have assignments in on time. Late assignments may receive a penalty of up to 5% of the maximum score per day (but see “Instructor Feedback Policy & Grade Dissemination”). Any in-person assignments (*e.g.*, quizzes, presentations, Midterm, Final) cannot be made up without prior approval except in exceptional circumstances (*e.g.*, car crash on your way to class, Hurricane) or for medical reasons. Note that the lowest two in-class quizzes will be dropped, allowing students to miss up to two classes without impacting their grade.

**Medical Excuses:**

Students should not attend class if they are ill, particularly if they have fever and/or gastrointestinal symptoms and/or respiratory symptoms such as a sneezing, runny nose, sore throat or coughing. Students experiencing any of these symptoms should contact immediately the Student Health Services (813-974-2331) on the Sarasota-Mantatee and Tampa campus or the Wellness Center (727-873-4422) on the St. Petersburg campus for appropriate medical guidance and to obtain a verification of care letter. Students may turn to other health providers as well. **To be approved for missed classes, late assignments or missed examinations a verification of care letter must be presented by the student to the faculty member upon return to class.**

**Grades of "Incomplete"**:

The current university policy concerning incomplete grades will be followed in this course.

For undergraduate students: An “I” grade may be awarded to a student only when a small portion of the student’s work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the “I” is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. “I” grades not removed by the end of the time limit will be changed to “IF” or “IU,” whichever is appropriate.

For graduate students: An Incomplete grade ("I") is exceptional and granted at the instructor’s discretion only when students are unable to complete course requirements due to illness or other circumstances beyond their control. The course instructor and student must complete and sign the "I" Grade Contract Form that describes the work to be completed, the date it is due, and the grade the student would earn factoring in a zero for all incomplete assignments. The due date can be negotiated and extended by student/instructor as long as it does not exceed two semesters for undergraduate courses and one semester for graduate courses from the original date grades were due for that course. An "I" grade not cleared within the two semesters for undergraduate courses and one semester for graduate courses (including summer semester) will revert to the grade noted on the contract.

# Course Policies: Technology and Media

**Canvas**: Most assignments will be submitted via Canvas (with a few exceptions).

**Laptop Usage:** I strongly recommend NOT using laptops in class. Research has shown that taking notes in a notebook is more effective for multiple reasons (*e.g.*, fewer distractions in a notebook, writing things down aids in memory). If you do decide to use them, make sure they aren’t distracting for others.

**Phone Usage:** Keep phones silenced during class. If you need to take a call or do a lot of texting during class, please step outside of the classroom while you do so to avoid distracting others.

# Course Policies: Student Expectations

**Title IX Policy**:

Title IX provides federal protections for discrimination based on sex, which includes discrimination based on pregnancy, sexual harassment, and interpersonal violence. In an effort to provide support and equal access, **USF has designated all faculty (TA, Adjunct, etc.) as Responsible Employees, who are required to report any disclosures of sexual harassment, sexual violence, relationship violence or stalking.** The Title IX Office makes every effort, when safe to do so, to reach out and provide resources and accommodations, and to discuss possible options for resolution.  Anyone wishing to make a Title IX report or seeking accommodations may do so online, in person, via phone, or email to the Title IX Office. For information about Title IX or for a full list of resources please visit: <https://www.usf.edu/title-ix/gethelp/resources.aspx>*. If you are unsure what to do, please contact Victim Advocacy – a confidential resource that can review all your options – at 813-974-5756 or*[*va@admin.usf.edu*](mailto:va@admin.usf.edu)*.*

**Generative AI:**

Use AI sensibly, if at all. The goal of this course is to teach you, and using AI to write your assignments negates that learning. It’s also still pretty bad at a lot of community ecology stuff. While generative AI should not be used to write any assignments, there are permissible uses for it. For example, ChatGPT can be used to help identify papers to read (but use caution! It likes to make up papers that don’t actually exist), or AI tools could generate images for use within a conceptual figure. In all cases, any use of AI must be cited. If you have questions about permissible use of AI, just ask.

# Learning Support and Campus Offices

### **Academic Accommodations**

Students with disabilities are responsible for registering with Student Accessibility Services (SAS) in order to receive academic accommodations. For additional information about academic accommodations and resources, you can visit the SAS website.

[SAS website for the St. Pete campus.](https://www.stpetersburg.usf.edu/student-life/resources/student-accessibility-services/)