

Syllabus BIOL 5133 – 060 (80153)

Landscape Ecology Lab

Fall 2023

Meeting Times: All-online (but with deadlines)

Location: All-online. Take the course wherever you are!

First Day of Class: Monday, August 21st

Last Day of Class: Friday, December 1st

Date to Withdraw Without Penalty (Census Date): Friday, September 1st

Please note that this course is all-online and has no face-to-face component.

Instructor:

Dr. Joshua Banta

Director, Center for Environment, Biodiversity, and Conservation

Professor, Department of Biology

Office: Hudnall, Pirtle, Roosth Building (HPR) Room 129. NOTE: Since this is an all-online class, office hours will be held over the phone, not at my office.

Phone: (903) 565-5655

Email: jbanta@uttyler.edu

Office Hours: MWF 10:00 – 11:00 am or by appointment. NOTE: Since this is an all-online class, office hours will be held over the phone, not at my office. Simply call my phone number.

Course Description: This computer-based laboratory course is a companion to the Landscape Ecology lecture course. You need to take the lecture course concurrently except by special permission. This course teaches about spatial data using a Geographic Information System (GIS), and culminates in ecological niche modeling (also known as species distribution modeling).

Course Objectives (by the end of this course, you should be able to):

- Understand how to perform manipulations and analyses of spatial data using computer programs such as R Studio, GRASS GIS, and Maxent.
- Explain how these different approaches are used in landscape ecology.
- Understand the differences between vector and raster data.
- Understand what a projection, datum, and ellipsoid are in the context of spatial data.
- Understand and be able to explain the various outputs from the ecological niche modeling software Maxent.
- Apply GIS and ecological niche modeling methods to your own or other datasets.

Required Materials:

- Access to a **laptop or desktop computer** on a regular basis.
 - It is not permitted to take this course using only your smartphone.
 - It is also not permitted to take this course using an iPad or other tablet device.
 - You must be able to access reliable, high-speed internet on your laptop or desktop computer on a regular basis, with generous data usage (no low data caps!).
 - If you do not have regular access to a laptop or desktop computer, the Biology Department has its own computer lab. It is located in the Biology, Education, and Psychology (BEP) building in room 139. It is available for your use on Mondays from 8:00AM – 10:50AM, and at other times when it is not in use. You may be asked to leave if you use it outside of Monday mornings and someone else has the room scheduled. I will not be present.
 - If the computer lab is locked, see Alan Lizarraga (BEP 134) for access. Email: alizarraga@uttyler.edu
 - No other computer labs are permitted for this laboratory course. Only BEP 139 has the right software installed.
- A reliable high-speed internet connection that you can access on a regular basis.
- Headphones or speakers that work on your laptop or desktop computer.
 - The speakers may be built into your device (internal), or you may need to add external headphones or speakers on your own.
 - The bottom line is that you will need some way to hear sound on your device that accompanies the videos you will watch.
 - I have a limited number of headphones I can lend to you if you need them (on a first-come, first-served basis until they run out).
- 128GB USB 3.0 Flash Drive
 - This drive will be provided to you at no cost.
 - I will ask you for an address to mail it to. It will be sent to you via overnight mail.
 - If you lose it, you will be responsible for replacing it with the exact same item, at your own expense. You can replace it here:
 - <https://a.co/d/2Id6st0>

- If you are using your own computer, you must install the following software:
 - Windows:
 - VirtualBox
 - Visit <https://www.virtualbox.org/>
 - Installation instructions can be found here:
 - https://www.youtube.com/watch?v=63_kPIQUPp8&feature=emb_logo
 - The computers in the Biology Department computer lab (BEP 139) already have VirtualBox installed. See above for information about the computer lab.
 - Mac
 - Intel processor
 - VirtualBox
 - Visit <https://www.virtualbox.org/>
 - Installation instructions can be found here:
 - https://www.youtube.com/watch?v=63_kPIQUPp8&feature=emb_logo
 - The computers in the Biology Department computer lab (BEP 139) already have VirtualBox installed. See above for information about the computer lab.
 - ARM processor
 - UTM
 - Visit <https://mac.getutm.app/> and select “Download”
 - Installation instructions can be found here (from 0:00 to 5:37):
 - https://youtu.be/f6oU_JzrALk
 - **Don't go past 5:37 in the video instructions!**
 - To figure out which processor your Mac has, please follow these instructions:
 - <https://uttyler.instructuremedia.com/embed/8e25fecf-3d86-4619-b07f-1b1cc525603c>
- If you cannot access these materials, you **cannot** take this course. Changes to the assignment deadlines will **not** be made if you lack (even temporarily) access to these materials, except in some exceptional situations specifically related to COVID (see the COVID section below). Missing deadlines will result in zeros on the assignments and these zeros cannot be changed.

Grading:

Quizzes, 10% of final grade when added together

Video recordings of yourself doing the labs, 40% of final grade when added together

Research paper, 50% of final grade

Total: 100%

90 – 100% = A

60 – 69% = D

80 – 89% = B

< 60% = F

70 – 79% = C

Topics (subject to change)

Introduction to Geographic Information Systems and GRASS GIS

Projections and transformations

Rasters and raster manipulation

Fine-tuning rasters

Vector buffering and clipping

Making rasters from vectors

Checking for correlations among rasters

Reprojecting GPS coordinates and extracting the new coordinates

Ecological niche modeling: choosing the settings for Maxent

Ecological niche modeling: running Maxent

Ecological niche modeling: testing whether two ecological niche models are different

Extracting raster data at point locations

Mark-recapture analysis

Attendance and make-up policy: “Attendance” in this all-online course means handing in multiple assignments, every week, by the deadlines, and “attendance,” in this sense, is mandatory. **No late work will be accepted.** Even though this course is entirely online and self-paced, there are strict deadlines to follow that require your regular participation. The deadlines are **not** flexible. You are expected to plan ahead and do your work ahead of time. You are expected to **not** wait until the last minute. Problems with your laptop/desktop or internet connection or Canvas, problems with scheduling for your job(s) or other classes, car problems, problems with child care, or personal or medical problems will not be accepted excuses for missing the deadlines. In general **no** excuses will be accepted, except under extraordinary circumstances at my sole discretion. Missing the deadlines means you will receive zeros on the missed assignments and these zeros cannot be changed. **There will be no make-up assignments or extensions.**

Correspondence: You are required to activate the email address that is listed for you on Canvas and to check it regularly. You must check this email address at a minimum every Monday morning, for the entire duration of the semester, for any correspondence from me. You are also required to check the Canvas site for this course every Monday morning as well, for the entire duration of the semester, for any announcements. You will be held responsible for any information, including deadlines, that I communicate to you via your email address listed on Canvas and/or through the announcements on the Canvas course site. The information could come from one or both places (email and/or Canvas announcements), so you must check BOTH places on the schedule indicated above.

Due Dates and Deadlines: You are required to have this course visible in your calendar on Canvas. To do so, make sure the box for the course has a check mark. You will be held responsible for all of the due dates and deadlines for this course that are indicated in your Canvas calendar.

Quizzes: The quizzes will be embedded into pre-recorded videos on Canvas. In other words, you will take the quizzes as you watch videos. The quiz questions will automatically pop up on your screen as you go along. The due dates of the quizzes will be indicated in your Canvas calendars. The videos with the embedded quizzes will be available at least one week before the due dates. The quizzes will tentatively be due every Monday evening throughout the entire semester.

Video recordings of yourself doing the labs: You will be repeating the step-by-step videos I have made for you, so that you will get first-hand experience performing the computational analyses yourself. To prove that you have done the activities, you will be recording yourself doing them using the “Studio” function in Canvas. You will **not** need a webcam or microphone to do this, as you will only be capturing what’s on your screen. You will then turn in these recordings through Canvas. You must do the recording yourself and you cannot do it with others. You cannot hand in the same video as anyone else from this or previous year’s classes. The rules about copying that are described below will apply.

Final project: The instructions will be posted on Canvas later in the semester. This paper and associated assignments will be worth 50% of your final grade. The paper will be due as indicated in your Canvas calendars and will be submitted through Canvas. Drafts of the entire paper or individual sections may be due earlier and count towards the overall research paper grade. Papers or assigned drafts that are not submitted through Canvas will not be counted and will receive zeros that cannot be changed. You will either be using your own data or I will be providing you with data. If I provide you with data, you will have no expectation of authorship on any future papers, conference proceedings, reports, or other works arising from that data, or arising from any analyses that are performed using that data. Detailed instructions will be provided later. The final draft of the research paper is due by Monday, December 4th at 11:59pm.

Copying: You can discuss your assignments with your friends or classmates whenever you want and you can discuss anything you want. But **you**, alone, are expected to write everything that you submit, by yourself, and everything that you submit must be in your own words. It is not allowable to hand in something as a group, or for all members of a group to each hand in the same thing. **Any** copying whatsoever from others, whether they are part of your study group or not, is entirely **prohibited**. You are **not** allowed to pass around your submitted assignments or drafts to anyone else to look at, **for any reason**, and you are also not allowed to look at submitted assignments or drafts of anything written by anyone else. These prohibitions apply to any materials submitted by students in previous years’ classes as

well. These prohibitions also apply to any material from **any** source (newspaper, TV, website, professional journal, magazine, etc.) Simply putting everything in quotation marks does **not** get around any of these prohibitions, **because quoting is not allowed either, no matter what the source is!** If you hand in the same assignment as someone else, or if it is copied from someone else, even a little!, or if the assignment contains any quoting from any source, with or without quotation marks, you will receive a zero for the assignment and the person you copied from will receive a zero as well. I will not seek to determine who copied from whom; all persons with similar content will have the same penalty.

Citations: When writing your final paper, you will be consulting other sources. There will be strict rules about what other sources are allowed and how to cite these sources in your paper. The rules about copying will apply as well, and so will the penalties, and this includes the rules forbidding quoting, even with quotation marks. More detailed rules for the research paper will be provided later. Failure to follow the rules for citations will result in a zero for the final paper.

Appeals: If you think something was scored incorrectly, you will need to follow the following procedure:

- Write a few sentences explaining why you think you should have received a different score.
- Appeals will only be accepted through Canvas, and must be turned in no later than one week after the assignment was graded. Go to the course site and select “Modules” → “Appeals.”
- Failure to follow these rules means that your appeal will not be considered.
- The only reasons I will give back points are if: (1) I made a math error; or (2) I decide that your answer was factually correct and followed all applicable rules indicated in the syllabus and elsewhere. By “factually correct,” I mean that your answer was really true about the world. Please also note that I, alone, will determine what is true and what is not.
- The following are **not** valid reasons for getting points back: you feel that I explained something badly, you misunderstood what I was saying, or you feel that my PowerPoint slides or other materials were wrong or unclear.
- Please note that I cannot discuss anyone else’s scores with you because of privacy reasons, even if you say that you have their permission, and even if they say that I have their permission. I lack the legal expertise to allow someone to waive their privacy privileges, even if they want me to, and even if they have already shared their scores with others on their own.
- Appeals can result in a lower score, the same score, or a higher score than you originally received. Specifically note that I reserve the right to **lower** your score if I re-evaluate it and deem it appropriate.
- The rules about copying apply to appeals as well. See above.

Unicheck: All assignments and appeals that you hand in will be checked for copying using a program called Unicheck™. This software checks the internet as well as every other student’s work who has ever taken this course or any other course. It also checks against any papers that are secretly traded or sold over the internet. The bottom line is that if you copy someone else’s or somewhere else’s writing, even a little, the software will catch you and it will give me the names of the other persons and/or the other copied sources.

COVID: Illnesses involving yourself and/or others will generally **not** be considered excuses for missing the deadlines to turn in assignments, in which case you will receive zeros on those assignments and those zeros cannot be changed. This is because I expect you to do the work ahead of time and not to save it for the last minute. However, if you are unable to meet the requirements for the course specifically because of some specific disruptions related to COVID, I may give you a grade of “incomplete” for the course, at my discretion. For this to be possible, you will need to discuss the situation with me as soon as you can.

If I allow it, then the procedure will be as follows:

- When conditions improve, you will be able to continue making progress in the course, on your own, until you have completed all of the required assignments.

- You will have one year to finish the incomplete assignments.
- If you do not finish the assignments by that point, your “incomplete” grade for the course will be changed to the grade you earned up to that point, with zeros factoring into your grade for everything else that is left unfinished, and you will no longer be given the opportunity to finish the rest of the work or to change your course grade beyond that point.

The **only** COVID-related disruptions I may consider are:

- You or someone you care for gets COVID (and let’s all wish this doesn’t happen!!!), and this renders you unable to keep up with the course.
 - In this case, I will require a doctor’s note that references the date of the positive COVID test and explains the severity of the situation.
- COVID disrupts your access to consistent, reliable, high-speed internet and/or to consistent, regular usage of an internet-enabled laptop or desktop computer on which to access high-speed internet.

Privacy: Students do **not** have the right to be “anonymous” whether classes are in person or online, or for all-online classes. All discussion will take place within Canvas, and your names will be displayed.

Grade grubbing: Grade grubbing will not be tolerated. I have quoted some relevant passages below about grade grubbing. They come from an excellent website that I recommend you read:

<https://www.math.uh.edu/~tomforde/GradeGrubbing.html>

Grade Grubbing (also called "grade begging" or "grade lawyering") is the act of a student going to a professor and asking for a grade to be raised for no legitimate reason. Often the student argues that they feel their work was "not graded fairly", or they made only a small mistake and should get more points, or they knew what they were doing even though they gave the wrong answer. Grade grubbing often involves asking for detailed justification of why certain points were taken off, questioning subjective aspects of grading (e.g., Why is this problem worth 5 points and this one worth 7 points?), and wearing down the professor by arguing, begging, and pleading until they finally relent and increase the student's grade.

...In addition, grade grubbing presents a very negative image of you: it indicates that you do not care about learning the material, and that all that matters to you is your grade in the class, even if you get that grade unfairly or when you do not deserve it.

Grade grubbing greatly affects the way your professors view you and the way they will treat you in the future. If you challenge your grade without a good reason, you will probably not be remembered fondly when you ask that professor for a recommendation...

...If an obvious error has been made in grading, such as points added incorrectly or a clearly correct answer was inadvertently marked wrong, then by all means talk to the professor and they will likely change your grade immediately. Likewise, if you don't understand why you lost points, or want clarification (not justification) of the grading, most professors are happy to talk with you. **And, if you want to discuss the material, learn what you did wrong, or discuss how to do better on future work, most professors will probably be thrilled to speak to you about this.**

However, if you are going to approach a professor who has spent their life studying, teaching, and doing research on a particular topic, and then argue that their decision of how to grade or award points should be changed to what you say it should be, then you better be prepared with a strong and convincing argument.

Source: <https://www.math.uh.edu/~tomforde/GradeGrubbing.html>

Student Resources and University Policies: These can be found on the Canvas course page under “Modules” → “Course Information.”