

# **BIOL 4506 - The Biology of Extreme Environments**

## **Instructor and Contact Information**

**Name:** Warren Burggren

**Pronouns:** he, him, his

**Office Location:** LSB 218

**Phone Number:** 940-367-2882 (mobile)

**Office Hours:** Thursday 9:30-11:30 in LSB218, via Zoom or by appointment

**Email:** burggren@unt.edu

**Course Zoom Code:** <https://unt.zoom.us/j/82644347387>

**Communication Expectations:** The primary mode for communicating will be through CANVAS for email communications and for posing general questions, and through a combination of primarily face-to-face and Zoom for lectures, discussions and presentations. I typically respond to emails within 24-48 hours, and often within just a few hours.

## **AI:** Use AI for brainstorming, or as a tutor, or to improve your writing, but don’t have it do the work for you. You can use the AI to help your writing, but in large part because of that, I am looking to see not just your knowledge of extreme environments, but your knowledge of Warren Burggren’s FALL 2024 Biology of Extreme Environments class. Thus, introduce ideas and concepts that show you 1) attended class and 2) listened to me.

## **1. ABOUT BIOLOGY 4506. BIOLOGY OF EXTREME ENVIRONMENTS**

## **1.1. Course Description**

**BIOL 4506 – The Biology of Extreme Environments** – is an interactive, lecture- and discussion-based undergraduate course that explores deep sea thermal vents, high altitude, deserts, polar regions, hot springs, volcanos, caves, alkaline lakes, highly polluted sites – any environment that presents extreme challenges to survival, yet is often found to host a wide variety of life. Drawing examples from plants, animals and microbes, this course will explore the biochemical, metabolic, physiological, morphological and behavioral adaptations that have allowed life to survive, if not thrive, at the extreme edges of what is possible.

## **1.2. Course Prerequisites or Other Restrictions**

There are no prerequisites. However, as almost all of you are juniors or seniors, I view this course as preparation for the “next step’ in your professional development. Consequently, I will expect sophisticated, informed interaction and performance.

## **1.3. Course Structure**

The course is structured around:

* Every Wednesday night during the semester for a total of 15 lectures. Most are delivered face-to-face, with some lectures delivered remotely in real time. The lectures are grouped into six themes, each comprising one of the six modules
* Attendance and participation/discussion
* Two PowerPoint presentations done in teams of 3 students
* Three written assignments
* There are no formal exams

## **1.4. Course Objectives**

By the end of this course, you should:

1. Understand the *challenges* presented by extreme environments
2. Appreciate the *complexity* presented by extreme environments
3. Explore the *evolutionary adaptations* by which organisms not just survive, but actually thrive in extreme environments
4. Learn how to *present* better
5. Learn how to *write* better
6. Learn the promise and perils of AI (ChatGPT)
7. Fall even deeper *in love with Biology*!!

## **1.5. Teaching Philosophy**

I hope that you find this course as interesting to take as I do to teach!   Apart from learning the fascinating content, additional goals for you as student are to help you develop your presentation, discussion and writing skills - all essential for your continuing professional development.  Essentially, you will get out of this advanced course precisely what you put into it!   The Biology of Extreme Environments will give you an insight into the educational process after your UNT undergraduate degree, where the goal is not "a grade" but to continue to grow both professionally and intellectually.  Such growth is rarely measured by grades, but by how you present yourself in a conversation, interview. presentation, content knowledge, etc. These are skills you will learn and polish in this course.

## **2. WHAT YOU NEED FOR THIS COURSE**

## **2.1. Course Materials**

* No textbooks are used in this course, but you will be searching for and using materials from data bases such as PubMed and Google Scholar and other Web sources. Additionally, you will use ChatGPT to create one (and only one!) assignment as specified.

## **2.2. Course Technology**

For the remotely offered lectures in this course, you will need:

* Computer with camera
* Reliable internet access
* Speakers
* Microphone
* PowerPoint
* Adobe Acrobat
* [Canvas Technical Requirements](https://clear.unt.edu/supported-technologies/canvas/requirements) (https://clear.unt.edu/supported-technologies/canvas/requirements)

### **2.3. Computer Skills & Digital Literacy**

You will need the necessary technical skills to:

* Use Canvas
* Use Zoom
* Use ChatGPT
* Use email with attachments
* Download and install software
* Using presentation and graphics programs

In the event of any unexpected server outage or any unusual technical difficulty which prevents students from completing and uploading your assignment by the deadline, I will consider extending the time window and provide an appropriate accommodation, based on the situation. However, you must immediately report any problems to me and contact the UNT Student Help Desk: [helpdesk@unt.edu](mailto:helpdesk@unt.edu) or 940.565.2324 and obtain a ticket number. The UNT Student Help Desk and I will then work with the student to resolve any issues at the earliest possible time.

### **2.4. Technical Assistance**

Students can get technical help at [UIT Student Help Desk site](http://www.unt.edu/helpdesk/index.htm) <http://www.unt.edu/helpdesk/index.htm>

**Email**: [helpdesk@unt.edu](mailto:helpdesk@unt.edu)

**Phone**: 940-565-2324

**In Person**: Sage Hall, Room 130

**Walk-In Availability**: 8am-9pm

**Telephone Availability**:

* Sunday: noon-midnight, Monday-Thursday: 8am-midnight. Friday: 8am-8pm, Saturday: 9am-5pm

**Laptop Checkout**: 8am-7pm

For additional support, you can visit [Canvas Technical Help](https://community.canvaslms.com/docs/DOC-10554-4212710328) (https://community.canvaslms.com/docs/DOC-10554-4212710328)

## **3. ACHIEVING YOUR GOALS**

Each of you has the capacity for earning an A, if you attend, participate and do your best work at all times. Remember that this course is the start for your transition from undergraduate student to what comes next for you. You shouldn’t be trying to just get an A, but rather trying to acquire the skills that will help you succeed in your next steps.

Read the following information on grading, carefully.

## **3.1. Attendance and Participation**

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* **Participation:** Show up in the weekly CLASS, whether a face-to-face or Zoom class. Ask questions, make comments, offer observations – generally, participate in a material way in the classroom time. This portion of the course includes not only general participation during the lectures, but additionally includes demonstrated knowledge of the student-presented papers based on prior reading.
* **Attendance will be taken in every class session. Remember, missing “just one” lecture is like missing an entire week of a regularly scheduled course!**

## **3.2. Course Grading and Requirements**

**At A Glance - Course Grading and Requirements**

The table below indicates the assignment due date and the percentage of the total grade it represents. More information about the assignments is provided below.

|  |  |  |
| --- | --- | --- |
| **ASSIGNMENT** | **% OF GRADE** | **DUE DATE** |
| * Attendance/Participation | 20% | Continuous |
| * Class Presentation #1   (as a team of 3 students) | 8% | As Scheduled |
| * Class Presentation #2   (as a team of 3 students) | 12% | As Scheduled |
| * Writing Assignment #1 | 15% | September 17th, 2025 |
| * Writing Assignment #2 | 20% | October 22nd, 2025 |
| * Writing Assignment #3 | 25% | December 3rd, 2025 |
|  | Total = 100% |  |

All written assignments are to be uploaded as **.doc** or **.docx** documents (not as PDFs, because it makes it much more difficult for me to edit them for you). Assignments should be uploaded in the Assignments Tab. Go the “Upcoming Assignments” and click on the specific assignment, then click on the “Submit” button.

No, you didn’t miss it. There are no exams in this class! However, you will be fully earning your grade, as evident in the table above.

The grading scale for BIOL 4506 is as follows: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 50-59. There are no opportunities for “*extra credit*”. You know at the start of the course what you need to do, so just do it. Recognize that there is no “extra-credit” in your next phase of career development, be that Grad School, Medical/Dental/Veterinary School, a professional position, etc.

***>>>Specific details, including due date and detailed instructions, are given in the description of each assignment, in the “Assignment” tab in CANVAS. It is vital you are familiar with this information before starting your assignments!<<<***

## **3.3. Late Assignments**

For every 24-hour period that an assignment is late and unexcused, one letter grade will be subtracted. However, stuff happens in life, so contact me if you anticipate missing a deadline so we can discuss.

## **3.4. Course Evaluation**

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course. I will communicate how to do the course evaluation as soon as I learn of it.

### **3.5. Class Recordings & Student Likenesses**

Synchronous (live) sessions in this course will not be recorded for students enrolled in this class section, but my PowerPoint Presentations (which very closely follow my lectures) will be posted on CANVAS to refer to throughout the semester. *PowerPoints are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.*

### **3.6. Rules of Engagement By Students and Instructors**

UNT supplies the following “Rules of Engagement”, referring to the way students are expected to interact with each other and with their instructors. Here are some general guidelines:

* While the freedom to express yourself is a fundamental human right, any communication that utilizes cruel and derogatory language on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law will not be tolerated.
* Treat your instructor and classmates with respect in any communication online or face-to-face, even when their opinion differs from your own.
* Ask for and use the correct name and pronouns for your instructor and classmates.
* Speak from personal experiences. Use “I” statements to share thoughts and feelings. Try not to speak on behalf of groups or other individual’s experiences.
* Use your critical thinking skills to challenge other people’s ideas, instead of attacking individuals.
* Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”
* Be cautious when using humor or sarcasm in emails or discussion posts as tone can be difficult to interpret digitally.
* Avoid using “text-talk” unless explicitly permitted by your instructor.
* Proofread and fact-check your sources.
* Keep in mind that online posts can be permanent, so think first before you type.

Additionally, as members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT’s full Non-Discrimination Policy can be found in the UNT Policies document associated with this course.

**3.7. Syllabus Change Policy**Any changes to the Syllabus will be communicated within 24 hours via CANVAS email notice.

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## **4. UNT Policies**

Amazing if you’ve read this far! Now UNT wants me to provide information an additional five (5!) pages of UNT Policies that apply to this course. I’ve posted this important information as a document entitled “UNT Policies” in the “Course Information” Module in the Modules section in CANVAS.