**Phage Hunters Advancing Genomics and Evolutionary Science (PHAGES)**
**Introductory Biology Research Laboratory II – Spring 2023**
**BIOL 1755.501,** MW 1:00-2:50pm
**BIOL 1755.502,** MW 4:00-5:50pm

**INSTRUCTORS:** **Dr. Lee Hughes**
Office: Life Sci A223, lhughes@unt.edu
Student Hours: By appointment

**TEACHING ASSISTANT:**
**501: Ahmad Sulaiman**
Office: LIFE A224, AhmadSulaiman@my.unt.edu
Student hours: TBD
**502: Sreemoya Nath**
Office: TBD, sreemoyenath@my.unt.edu
Student Hours: TBD

**Textbook:** **SEA-PHAGES Bioinformatics Guide**
**(manual provided online to students for use during the course)**

**PHAGES Laboratory Courses:**
This is the second course of a two course sequence (BIOL 1750 for 2 SCH in the first semester and BIOL 1755 for 1 SCH in the following semester) in which research activities on bacteriophage genomics will be conducted.

**Course Materials:**
All course materials are available through Canvas at unt.instructure.com.

**Technology:**
This course uses primarily web-based bioinformatic tools. It is recommended that students bring a laptop or tablet to lab if possible, but a limited number of computers are available in the laboratory for student use.

**Laboratory Goals:**
The goals for the spring semester include the following:

- Each student will learn to use the bioinformatics tools necessary to finish and annotate bacteriophage genomes.
- Each student will complete a positional and functional annotation of a previously uncharacterized bacteriophage genome.
- Each student will be able to explain and justify their annotations to their classmates and, as a group, reach consensus on the final annotations of complete bacteriophage genomes.
- The class as a whole will prepare annotated bacteriophage genomes for submission to GenBank.
- The class as a whole will assist in preparation of a poster about the annotated genomes for presentation to outside audiences.
- Each student will prepare a written report describing their annotations and any additional experimental research conducted during the course.

**Attendance Policy:**
**Attendance is required** at all scheduled laboratory meetings and **on-time arrival** is critical (three tardies will equal one absence in grading). Absences for medical reasons **will not** result in grade penalties, but students are expected to keep up with class work and to attend class meetings remotely if they are able.

Unexcused absences or failure to make arrangements for catch up work for excused absences may result in lower grades or zeroes on daily notebook checks, lab quizzes, and other graded course activities.

It is important that you communicate with the instructor and the teaching assistant prior to being absent, so you, the instructor, and the teaching assistant can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the instructor and teaching assistant if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

If you are experiencing any symptoms of COVID-19 or other illnesses please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to class. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

**STUDENTS WITH DISABILITIES:**

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information see the Office of Disability Access website at http://www.unt.edu/oda. You may also contact them by phone at 940-565-4323.

**COMMUNICATION:**

Please communicate with the instructor or TA during scheduled lab time or through email. You may also schedule other meeting times as needed. Please note that our email inboxes can become rather full during busy times, so if you do not receive a response within two business days, please send a follow-up email. A gentle nudge is always appreciated.

All course communications will be through Canvas. Be sure to check Canvas announcements regularly and to setup your Canvas notifications to send updates to an email address that you regularly check.

**EMERGENCY NOTIFICATION & PROCEDURES:**

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

**ACADEMIC INTEGRITY STANDARDS AND CONSEQUENCES:**

According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. Students in this course are expected to do their own work except when instructed to work in groups. Academic dishonesty in graded coursework may result in a grade of zero for that activity or additional penalties as allowed under university policy. All instances of academic dishonesty will be reported to the University.

**GRADING:**

Your course grade will consist of the following elements:

- 9% Attendance (3 subtracted per absence or 3 tardies; more than 3 absences may result in failure of the course)
- 36% Laboratory Notebooks (daily checks)
- 15% Concept Quizzes (Online quizzes both announced and unannounced. Number will vary.)
- 40% Project Reports, Posters and Presentations on annotation work and other research project (number and due dates will vary)
- 100% Overall % Grade *(Letter grades will be assigned on a typical scale: 90+=A, 80-89=B, 70-79=C, 60-69=D, <60=F)*

## TENTATIVE LABORATORY SCHEDULE
## BIOL 1755 – Introductory Biology Research Laboratory II

Due to the unpredictable nature of the genome analysis aspects of this course, a specific timeline for most course activities cannot be determined in advanced. The schedule below is an overview of the major events of the course. Specific readings and assignments will be given at each class meeting.

| Meeting | Date | Topic | Readings |
|---|---|---|---|
| | Jan. 16 | NO LAB – Martin Luther King Jr. Day | |
| 1 | Jan. 18 | Course Introductions and Overview | As assigned |
| 2 | Jan. 23 | *Streptomyces* Genomes and Introduction to Bioinformatics Tools | As assigned |
| 3 | Jan. 25 | Review: Transcription and Translation; Reading a 6-frame Translation | |
| 4 | Jan. 30 | Using Programs to view 6-frame Translations; Using Codon Bias to Predict Genes | |
| 5 | Feb. 1 | Overview of Annotation Programs | |
| 6 | Feb. 6 | Comparative Genomics Tools; Guiding Principles of Phage Genome Annotation | As assigned |
| 7 | Feb. 8 | Mechanics of Annotation Procedures; Practice annotating a gene | As assigned |
| 8 | Feb. 13 | Begin Genome Annotation | |
| | Mar. 8 | Target date to begin Special Projects | |
| | Mar. 13 &15 | Spring Break – No Class | |
| | May 1 | Final Reports Due. Special Project Presentations. | |
| | May 3 | Last Class Meeting | |

Other Dates of Importance:

Feb. 7, 2023 – Applications for competition posters due for University Scholars Day (non-competition, March 7)

Feb., 2023 – Submission due for Texas Branch-American Society for Microbiology Spring Meeting

March, 2023 – Student Abstract Deadline for SEA Symposium

March 24-25, 2023 – Texas Branch-American Society for Microbiology Spring Meeting (Abilene, TX)

April 14-16, 2023 – SEA Symposium (virtual)

April 4, 2023 – University Scholars Day