BIOL 3340/5340 (Bioinformatics)  
Fall 2020

Professor: Jeffery P. Demuth, Ph.D.  
Office Number: ERB430  
Email Address: jpdemuth@uta.edu  
Faculty Profile: https://www.uta.edu/profiles/dr-jeffery-demuth  
Office Hours: by appointment

Time and Place of Class Meetings: I will conduct class online in Microsoft Teams at the regularly scheduled time (Tu/Th 2:00-3:20). The class will be recorded and made available through Canvas. Some content may be pre-recorded and made available through Canvas.

Course Content and Learning Outcomes: This course provides a hands-on introduction to bioinformatics and computational genomics. The course is geared toward the student with a biology background and limited programming experience. Coursework will be completed almost exclusively in the UNIX/Linux computing environment and students will learn to program using Python. Students will learn: how to reframe biological problems into computationally tractable questions, basic computational biology algorithms, analyses of genome and transcriptome data.

Prerequisites: Introductory Biology. Genetics.

Text for the course:  
Course materials will all be made available via Canvas or other online resources.

Hardware and Software:  
This course requires extensive use of a personal computer running the latest version of either Microsoft Windows 10, Mac OS, or Linux. Bioinformatics, and scientific computing generally, are dominated by UNIX/Linux systems, so the course will require access to a Linux terminal.  
For Mac users:  
• The built in Terminal application functions effectively as a Linux terminal.  
For Windows users:  
• You will need to activate the Windows Subsystem for Linux (WSL). I recommend version 2 (WSL2). Here is a YouTube link for instructions on how to get WSL2 running.  
  o NOTE: You only need to watch the first 8 minutes of the video (up to the point where he sets the default to WSL2).

Descriptions of assignments:  
• Programming Homework (33%): (24 x 5pts = 120pts)  
• Computational Genomics (33%): (3-5 assignments worth 120pts)  
• Final Projects (33%): (40:40:40pts analysis:written:presentation 120pts)

Final letter grades will be assigned on the standard scale:  
90-100% = A, 80-89 = B, 70-79=C, 60-69=D, <60=F.
I reserve the right to modify the schedule of assignments to accommodate pace of the class and to curve final grades. Any modifications will be announced in class.

Tentative Course Schedule:

Weeks
1  Intro to scientific computing & setting up the software environment
2-8  Unix, Python and Intro to Algorithms
9-13  BLAST, Alignment, Orthology, Variant Analysis, RNA-seq, Functional Annotation
14-16  Projects

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Institution Information

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page (https://resources.uta.edu/provost/course-related-info/institutional-policies.php) which includes the following policies among others:

- Drop Policy
- Disability Accommodations
- Title IX Policy
- Academic Integrity
- Student Feedback Survey
- Final Exam Schedule

Additional Information

Mandatory Face Covering Policy
All students and instructional staff are required to wear facial coverings while they are on campus, inside buildings and classrooms. Students that fail to comply with the facial covering requirement will be asked to leave the class session. If students need masks, they may obtain them at the Central Library, the E.H. Hereford University Center’s front desk or in their department. Students who refuse to wear a facial covering in class will be asked to leave the session by the instructor, and, if the student refuses to leave, they may be reported to UTA’s Office of Student Conduct.

Attendance
At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator of student success. Each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which
includes establishing course-specific policies on attendance. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

**Student Success Programs**

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring by appointment, drop-in tutoring, etutoring, supplemental instruction, mentoring (time management, study skills, etc.), success coaching, TRIO Student Support Services, and student success workshops. For additional information, please email resources@uta.edu, or view the Maverick Resources website.

**Conflict of Resolution**

If you are experiencing an issue in lab or class, you should first arrange a meeting with your instructor. If the issue still requires attention, you may then consult the Associate Chair of the Department of Biology, Dr. Melissa Walsh. To do this you can file a grievance at [https://www.uta.edu/php-lib/machform/view.php?id=3403](https://www.uta.edu/php-lib/machform/view.php?id=3403). You must file the form in order to have your issue heard. None of the listed personnel will discuss the issue with you until you have first consulted all of those preceding him/her.

**Emergency Phone Numbers**

In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381

**Library Information**

**Research or General Library Help**

Ask for Help
- [Academic Plaza Consultation Services](library.uta.edu/academic-plaza)
- [Ask Us](ask.uta.edu/)
- [Research Coaches](http://libguides.uta.edu/researchcoach)

Resources
- [Library Tutorials](library.uta.edu/how-to)
- [Subject and Course Research Guides](libguides.uta.edu)
- [Librarians by Subject](library.uta.edu/subject-librarians)
- [A to Z List of Library Databases](libguides.uta.edu/az.php)
- [Course Reserves](https://uta.summon.serialssolutions.com/#!/course_reserves)
- [Study Room Reservations](openroom.uta.edu/)