

BIOL 4451-110, CRN:10753, BIOINFORMATICS

Spring 2021

Texas A&M University-Central Texas

COURSE DATES, MODALITY, AND LOCATION

This is a 100% online course and uses the A&M-Central Texas Canvas Learning Management System [<https://tamuct.instructure.com/>].

Course dates: January 19th – May 14th, 2021

Meeting Times: Both the lecture and laboratory will be conducted via WebEx synchronously with class times,

Lecture - Tuesdays and Thursdays from 1:00 pm - 2:15 pm.

Laboratory - Thursdays from 9:30 am – 12.30 pm.

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Chamindika Siriwardana

Email: c.siriwardana@tamuct.edu

Office Hours: Monday, Wednesday and Friday 11.00AM – 12.00 noon, or by appointment.

Office hours will be held online on Webex. To schedule a meeting please email me a time to meet. I am available during the office hours listed above. If you are not available for a meeting during office hours, I can schedule a different time.

Student-instructor interaction

Email: Important information about the class will be communicated via email. All students must have an active email account that is checked daily. I try to answer all email the day I get it, but if you get no answer in 24hrs please resend it. Please write "BIOL 4451- (type your specific topic here)" in the subject line of the email. This tells me to prioritize your message because it is course related.

WARRIOR SHIELD

Emergency Warning System for Texas A&M University-Central Texas

Warrior Shield is an emergency notification service that gives Texas A&M University-Central Texas the ability to communicate health and safety emergency information quickly via email, text message, and social media. All students are automatically enrolled in Warrior Shield through their myCT email account.

Connect to Warrior Shield by [911Cellular](https://portal.publicsafetycloud.net/Account/Login) [<https://portal.publicsafetycloud.net/Account/Login>] to change where you receive your alerts or to opt out. By staying enrolled in Warrior Shield, university officials can quickly pass on safety-related information, regardless of your location.

COVID-19 SAFETY MEASURES

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, Texas A&M University-Central Texas has adopted policies and practices to minimize virus transmission. All members of the university community are expected to adhere to these measures to ensure their own safety and the safety of others. Students must observe the following practices while participating in face-to-face courses, course-related activities (office hours, help sessions, transitioning to and between classes, study spaces, academic services, etc.) and co-curricular programs:

- Self-monitoring—Students should follow CDC recommendations for self-monitoring. Students who have a fever or exhibit symptoms of COVID-19 should participate in class remotely and should not participate in face-to-face instruction. Students required to quarantine must participate in courses and course-related activities remotely and must not attend face-to-face course activities. Students should notify their instructors of the quarantine requirement. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities.
- Face Coverings— Face coverings must be worn inside of buildings and within 50 feet of building entrances on the A&M-Central Texas Campus. This includes lobbies, restrooms, hallways, elevators, classrooms, laboratories, conference rooms, break rooms, non-private office spaces, and other shared spaces. Face coverings are also required in outdoor spaces where physical distancing is not maintained. The university will evaluate exceptions to this requirement on a case by case basis. Students can request an exception through the Office of Access and Inclusion in Student Affairs.
 - o If a student refuses to wear a face covering, the instructor should ask the student to leave and join the class remotely. If the student does not leave the class, the faculty member should report that student to the Office of Student Conduct. Additionally, the faculty member may choose to teach that day's class remotely for all students.
- Physical Distancing—Physical distancing must be maintained between students, instructors, and others in the course and course-related activities.
- Classroom Ingress/Egress—Students must follow marked pathways for entering and exiting classrooms and other teaching spaces. Leave classrooms promptly after course activities have concluded. Do not congregate in hallways and maintain 6-foot physical distancing when waiting to enter classrooms and other instructional spaces.
- The university will notify students in the event that the COVID-19 situation necessitates changes to the course schedule or modality.

COURSE INFORMATION

Course Overview and description

Bioinformatics (BIOL-4451-110) is an undergraduate level (4-credit) course offered by Science and Mathematics department. It is a combined lecture and laboratory course.

In this course students will study how genomic sequence and its variations affect phenotypes. Focuses on the information available from DNA sequencing projects, ranging from the sequences of individual genes to those of entire genomes. Learn analytical techniques that can be used to evaluate sequence data, and examples of their biological significance.

Prerequisite(s): BIOL 4470 and BIOL 4471.

Course Objective or Goal

There is a vast world of freely available data that is available for you to download, investigate, and use however you see fit. This course will introduce you the sources to obtain data and the software available to analyze them. At the end of this course, you will have confidence in your ability to join a research laboratory and use your newly acquired skills to begin exploring the mountains of publicly available biological data!

Student Learning Outcomes (SLOs)

At the end of this course students will;

1. be familiar with a variety of issues in cellular and molecular biology that can be investigated using computational approaches.
2. understand the biological and mathematical process involved in bioinformatics.
3. be able to use different bioinformatics software to address questions in cellular and molecular biology.
4. be able to disseminate research data orally and through a written report.

Required Reading and Textbook(s)

Bioinformatics and Functional Genomics, by Jonathan Pevsner (3rd Edition).
<http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118581784.html>

Additional Textbooks (not required):

- Practical Bioinformatics, by Michael Agostino
- Phylogenetic Trees Made Easy, Barry G. Hall

COURSE REQUIREMENTS

Course Requirements:

Assignment/ Assessment Type	Percentage	Assignment/Assessment	Points	SLOs
Exams	50%	Quizzes (8)	40	1, 2, 3
		Final Exam	10	1, 2, 3
Participation	25%	Midterm Presentation	10	1, 3, 4
		Poster	15	1, 3, 4
Laboratory	25%	Lab Reports (10)	20	1, 3, 4
		Show & Tell	5	1, 3, 4
Course Total	100%		100	

Quizzes:

We will have eight 10-15 min. quizzes at one to two-week intervals, which will be notified beforehand. Each quiz will be worth five points. A quiz will include material you learned until the previous quiz. I will not quiz you on nitty-gritty details that anyone with the proper knowledge can lookup on-line or at a library but test if you understood the concepts. Combined the quizzes will contribute to the largest portion of your grade so make sure you do not miss them.

Midterm Presentations:

Each student will make a 15-minute presentation. You will select and present a paper of your choice from a high-ranking Bioinformatics journal. You will have to submit your paper two weeks in advance and must be preapproved.

Posters:

A student poster session will be presented at the conclusion of the semester. The poster will be over your independent laboratory project.

Lab Reports:

At the end of each lab, you will write a lab report based on your independent project. Instructions about the lab reports are posted on Canvas. You will upload the lab report on to Canvas. You will have a total of 10 lab reports during the semester. Plagiarism is a serious offense and any instances of plagiarism will result in action against the offending student(s).

Show and Tell (S/T):

Just like when you were a kid, who doesn't still enjoy bringing in something cool to show the class? To satisfy this burning desire, each student will have one "Show and Tell" sessions during the semester. On your assigned dates, you will describe a new bioinformatics tool or information website that we did not discuss in class. For example, while you are online

investigating Your Favorite Gene (YFG), you will naturally bump into interesting new tools. These tools will often tell you something about gene function that you did not learn about in class. What I want you to do individually is to keep track of these findings and develop a 5-minute presentation for the whole class.

Final Exam:

The final exam will cover all subject matter learned during the semester. The final exam will be a take home exam and will be posted on Canvas at the beginning of the semester.

Extra Credit:

The maximum extra credit you can earn is 3% of your total grade. Note that your total grade cannot exceed 100 points, therefore if you have a perfect 100 points score, the 3% extra credit will not be applied. The extra credit option will be posted on the Canvas homepage and students will submit the assignments on Canvas on or before or on the 7th of May.

Grading Criteria Rubric and Conversion

A 4.00 (90 +) Achievement that is outstanding relative to the level necessary to meet course requirements.

B 3.00 (80-89%) Achievement that is significantly above the level necessary to meet course requirements.

C 2.00 (70–79%) Achievement that meets the course requirements in every respect.

D 1.00 (60–69%) Achievement that is worthy of credit even though it fails to meet fully course requirements.

F 0.00 (less than 60%) Represents failure and signifies that the work was either (1) completed but at a level of achievement that is not worthy of credit or (2) was not completed and there was no agreement between the instructor and the student that the student would be awarded an "I" (incomplete).

I (Incomplete) The "I" shall be assigned at the discretion of the instructor when, due to extraordinary circumstances, the student was prevented from completing the work of the course on time. The assignment of an "I" requires a written agreement between the instructor and student specifying the time and manner in which the student will complete the course requirements. In no event may any such written agreement allow a period of longer than one year to complete the course requirements. For graduate and professional students, an "I" is to remain on the transcript until changed by the instructor or department. For all other students, work to make up an I must be submitted within one year of the last day of final examinations of the term in which the "I" was given; if not submitted by that time, then the "I" will automatically change to an F. To obtain an incomplete you must have been doing passing work in the course

Posting of Grades

All grades will be posted on the Canvas gradebook within one week of the due date for the exam/assignment.

Grading Policies

Read these carefully as I am strict with my policies.

Grading Policy and Point Breakdown: Grades in this course will be criteria-based on a number of activities including exams and projects. This means that grades will not be curved and anyone achieving a 90% or above will receive an A in this course.

Grade Dispute Policy: Grading disputes must be put in writing (with justification such as supporting statements from the text or another credible source) and given to me no earlier than 24 hours after the assignment has been returned. I will consider your request carefully but reserve the right to adjust your grade up or down.

Assignments: These will be varied in nature, but will consist of activities that cause the students to reflect upon the state of knowledge of the topic of the week, how that topic is perceived in the media, and/or analysis of specific research projects relevant to the subject. All assignments are to be turned in, on time (i.e. at class time on due date), to the Canvas website. I will not accept e-mailed assignments of any kind.

Late Assignments: I expect all assignments to be turned in on time. Late assignments interfere with my ability to provide timely, detailed feedback, as well as with your ability to learn and process new material. Accordingly, any unauthorized late assignment will receive a 5% reduction in grade for each day it is late. No assignments will be accepted after it has been graded and returned.

Exams/Quizzes: The exams/quizzes will be a mixture of matching, multiple choice and short answer, designed to provoke reflection, critical thought, and application of knowledge. You will receive a list of several sample or real exam questions ahead of time. You are encouraged to prepare for the exam by reviewing reading materials, outlining a draft of a response, and discussing these thoughts with your peers. You will then demonstrate your individual, integrated thoughts on the topic in a closed-book exam during the class period.

Missed exams: If you know you will miss an exam, please contact me BEFORE the exam. I will gladly give make-up exams if the student has an unavoidable reason for missing the exam (i.e. death in the family, severe illness). Keep in mind that I will expect documentation of your reason for missing the exam (e.g. doctor's note, obituary notice). Exams must be made up within a week of the original scheduled date, no exceptions regardless of excuse.

COURSE OUTLINE AND CALENDAR

Complete Course Calendar

Date	Lecture Topic & Quiz Dates	Lab Topic & S/T Dates
1/19	Introduction to the course	
1/21	Review the Central Dogma of Molecular Biology	Laboratory Safety Training, Lab 1: Literature Survey on YFG / Lab Report 1, due 1/27
1/26-1/28	Retrieving Biological Data from Databases/ Quiz 1 (1/26)	Lab 2: Retrieve biological information for YFG/ Lab Report 2, due 2/10; S/T1
2/2-2/4	BLAST	Lab 3: BLAST analysis for YFG/ Lab Report 3 due 2/10; S/T2
2/9- 2/11	Pairwise Alignments/ Quiz 2 (2/9)	Lab 4: Pairwise alignment for YFG/ Lab Report 4, due 2/17; S/T3
2/16-2/18	Multiple Sequence Alignment (MSA)/ Quiz 3 (2/16)	Lab 5: Constructing Multiple Sequence Alignment for YFG/ Lab Report 5, due 2/24; S/T4
2/23-2/25	Phylogenetic Analysis	Lab 6: Constructing a phylogenetic tree in MEGA7 for YFG/ Lab Report 6, due 3/3; S/T5
3/2-3/4	Introduction to Genomes/ Quiz 4 (3/2)	Lab (special): Giving an Effective Presentation; No Lab reports due; S/T6
3/9-3/11	MIDTERM PAPER PRESENTATIONS	MIDTERM PAPER PRESENTATIONS
3/22-3/25	Bioinformatics software platform Geneious/ Introduction to Genomes/ Quiz 5 (3/22)	Lab 7: Analysis of YFG within Geneious/ Lab Report 7, due 3/31; S/T7
3/30-4/1	Cloning a gene	Lab 8: In Silico Cloning of YFG/ Lab Report 8, due 4/7; S/T8
4/6-4/8	Network Analysis/Genomes – Viruses and Bacteria/ Quiz 6 (4/3)	Lab 9: Building a Network map for YFG/ Lab Report 9, due 4/7; S/T9
4/12-4/15	Gene Ontology (GO)/ Genomes – Fungi	Lab 10: GO map for YFG/ Lab Report 10, due 4/21; S/T10
4/20-4/22	RNA-Seq/ Genomes – Eukaryotes/ Quiz 7 (4/20)	Lab 11: Analysis of RNA-Seq data; No lab reports due.
4/27-4/29	Introduction to PERL and PYTHON/ Genomes – Human Genome	Lab 12: Writing a script in PERL; No lab reports due.
5/4-5/6	Human Disease/ Quiz 8 (5/4)	POSTER SESSION
5/12	Final Exam	

*YFG - Your Favorite Gene. Actually, by the end of the semester, it might be your least favorite gene - hopefully not - but you will certainly know a lot about it!

**S/T - Show and Tell.

Important University Dates

Link to the current academic calendar: <https://www.tamuct.edu/registrar/academic->

calendar.html

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system. **We strongly recommend the latest versions of Chrome or Firefox browsers. Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com/>] or access Canvas through the TAMUCT Online link in myCT [<https://tamuct.onecampus.com/>]. You will log in through our Microsoft portal.

Username: Your MyCT email address. Password: Your MyCT password

Canvas Support

Use the Canvas Help link, located at the bottom of the left-hand menu, for issues with Canvas. You can select “Chat with Canvas Support,” submit a support request through “Report a Problem,” or call the Canvas support line: 1-844-757-0953.

For issues related to course content and requirements, contact your instructor.

Online Proctored Testing

A&M-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio also requires the Chrome web browser with their custom plug in.

Other Technology Support

For log-in problems, students should contact Help Desk Central

24 hours a day, 7 days a week

Email: helpdesk@tamu.edu

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

Please let the support technician know you are an A&M-Central Texas student.

UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES

Drop Policy

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[<https://dynamicforms.ngwebsolutions.com/casAuthentication.ashx?InstID=eaed95b9-f2be-45f3-a37d->

46928168bc10&targetUrl=https%3A%2F%2Fdynamicforms.ngwebsolutions.com%2FSubmit%2FForm%2FStart%2F53b8369e-0502-4f36-be43-f02a4202f612].

Faculty cannot drop students; this is always the responsibility of the student. The Registrar's Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Registrar's Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Registrar's Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

Academic Integrity

Texas A&M University -Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Academic integrity is defined as a commitment to honesty, trust, fairness, respect, and responsibility. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. Academic misconduct is any act that improperly affects a true and honest evaluation of a student's academic performance and includes, but is not limited to, working with others in an unauthorized manner, cheating on an examination or other academic work, plagiarism and improper citation of sources, using another student's work, collusion, and the abuse of resource materials. All academic misconduct concerns will be referred to the university's Office of Student Conduct. Ignorance of the university's standards and expectations is never an excuse to act with a lack of integrity. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more [information regarding the Student Conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html),
[https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a report](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0),
[https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=0].

Academic Accommodations

At Texas A&M University-Central Texas, we value an inclusive learning environment where every student has an equal chance to succeed and has the right to a barrier-free education. The Office of Access and Inclusion is responsible for ensuring that students with a disability receive equal access to the university's programs, services and activities. If you believe you have a disability requiring reasonable accommodations please contact the Office of Access and Inclusion, WH-212; or call (254) 501-5836. Any information you provide is private and confidential and will be treated as such.

For more information please visit our [Access & Inclusion](#) Canvas page (log-in required)

[<https://tamuct.instructure.com/courses/717>]

Important information for Pregnant and/or Parenting Students

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and related guidance from US Department of Education's Office of Civil Rights, the Dean of Student Affairs' Office can assist students who are pregnant and/or parenting in seeking accommodations related to pregnancy and/or parenting. Students should seek out assistance as early in the pregnancy as possible. For more information, please visit [Student Affairs](https://www.tamuct.edu/student-affairs/index.html) [https://www.tamuct.edu/student-affairs/index.html]. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these [requirements and guidelines](http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf) online, please visit the website [http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf].

Title IX of the Education Amendments Act of 1972 prohibits discrimination on the basis of sex and gender—including pregnancy, parenting, and all related conditions. A&M-Central Texas is able to provide flexible and individualized reasonable accommodation to pregnant and parenting students. All pregnant and parenting students should contact the Associate Dean in the Division of Student Affairs at (254) 501-5909 to seek out assistance. Students may also contact the University's Title IX Coordinator.

Tutoring

Tutoring is available to all A&M-Central Texas students, on a remote online basis. Visit the Academic Support Community in Canvas to view schedules and contact information. Subjects tutored on campus include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Student success coaching is available online upon request.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, success coaching, or have any other question, contact Academic Support Programs at (254) 501-5836, visit the Office of Student Success at 212F Warrior Hall, or by emailing studentsuccess@tamuct.edu .

Chat live with a tutor 24/7 for almost any subject from on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log in and receive online tutoring support at no additional cost. This tool provides tutoring in over 40 subject areas except writing support. Access Tutor.com through Canvas.

University Writing Center

The University Writing Center (UWC) at Texas A&M University–Central Texas (TAMUCT) is a free service open to all TAMUCT students. For the Spring 2021 semester, all services will be online as a result of the COVID-19 pandemic. The hours of operation are from 10:00 a.m.-5:00 p.m. Monday thru Thursday with satellite hours Monday thru Thursday from 6:00-9:00 p.m. The

UWC is also offering hours from 12:00-3:00 p.m. on Saturdays.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WCOonline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu if you have any questions about the UWC and/or need any assistance with scheduling.

University Library

The University Library provides many services in support of research across campus and at a distance. We offer over 200 electronic databases containing approximately 250,000 eBooks and 82,000 journals, in addition to the 85,000 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place on Skype or in-person at the library. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group work spaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index].

For Spring 2021, all reference service will be conducted virtually. Please go to our [Library website](http://tamuct.libguides.com/index) [http://tamuct.libguides.com/index] to access our virtual reference help and our current hours.

A Note about Sexual Violence at A&M-Central Texas

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if

someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

Behavioral Intervention

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2) online [https://cm.maxient.com/reportingform.php?TAMUCentralTexas&layout_id=2].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/student-affairs/bat.html) website for more information [https://www.tamuct.edu/student-affairs/bat.html]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5800.

OTHER POLICIES

SCIENCE POLICIES

Lecture courses

1. There will be no bathroom breaks allowed during any exam. Be sure that you address this issue before beginning an exam.
2. Any student needing to take an exam at a different time as rest of students due to sickness or other accommodations will receive a different version of exam. This includes sickness, special accommodations, etc....
3. All students needing special accommodations must submit an accommodation form from the Office of Access and Inclusion listing the specific accommodations needed. Students are responsible for scheduling their own exam times with the TAMUCT Testing Center.
4. Any student missing an exam in class for any other reason (i.e. illness, death in family, etc....) must provide documentation for missing the exam (e.g. doctor's note, obituary notice, etc....). Exams must be made up within one week of original scheduled date, no exceptions.

INSTRUCTOR POLICIES.

What I expect of you. To get the most out of this class, you are expected to conduct yourself in a professional manner, which includes contributing to class discussions, being punctual, and notifying me of absences in advance.

Class Attendance. I expect that you attend each class session and arrive on time. If an unavoidable situation arises that prevents you from attending class, I expect that you also promptly contact me to discuss the missed material and get the notes from a classmate. I will not distribute my notes to students as they are often abbreviated and do not contain the detail needed to sufficiently understand the material.

What you can expect of me. You can expect me to start and end class on time, be available through office hours, e-mail, and by appointment, be responsive to student suggestions for course improvement, answer questions to the fullest extent possible and/or direct you to appropriate resources, return graded assignments and exams within a reasonable time frame, and treat you with respect as future colleagues.

Discussion. The topics in this class encompass a diversity of issues that merit in-depth thought and discussion. Since individuals will be expressing their opinions, I expect that will you respect others' contributions, as you would want them to do for you.

Credits and Workload expectations. For undergraduate courses, one credit is defined as equivalent to an average of two hours of learning effort per week (over a full semester) necessary for an average student to receive an average grade for the course. A student taking a four-credit class that meets for four hours a week should expect to spend an additional eight hours a week outside the classroom in order to earn an average grade.

Class Structure. Classes will involve a balance of active lecture and engaging learning activities. I believe that students learn the theories and concepts much better when they have an active role. I know that this may be new to some of you, but please keep an open mind and I know that you will get more out of this class because of it.

Copyright Notice

Students should assume that all course material is copyrighted by the respective author(s). Reproduction of course material is prohibited without consent by the author and/or course instructor. Violation of copyright is against the law and Texas A&M University-Central Texas' Code of Academic Honesty. All alleged violations will be reported to the Office of Student Conduct.

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Grading rubric for Midterm research paper presentation

Category	Exceeds expectations	Meet expectations	Below expectations	Does not meet expectations	Score
Title Slide	All the following are included; (1) Title, (2) author(s), (3) your name, (4) name of the class.	All the following are included; (1) Title, (2) author(s), (3) your name, (4) name of the class.	Only two to three of the four components are included.	Less than two components are included, or no title slide is provided.	5
Introduction	(1) Appropriate background information to introduce the larger problem. (2) Cites relevant past publications.	Appropriate background information from the paper presented. Does not cite other relevant publications.	Background information is provided; however, it is inadequate for the listener follow the presentation.	The background information provided does not correlate with the presentation.	25
Data Presentation	(1) Each slide presents one piece of data/ information from the paper. (2) Each graph, table is carefully explained in detail in a sensible order.	(1) Each slide presents one piece of data/ information from the paper. (2) Each graph, table is carefully explained.	(1) there are multiple pieces of data/ information in one slide (2) Graphs and tables are explained inadequately (no mention of x and Y axis etc.)	(1) there are multiple pieces of data/ information in one slide (2) Graphs and tables are not explained.	25
Overall Conclusions	Reinforce what the listeners have already heard in a logical manner. Does not exceed 1-2 slides.	Reinforce what the listeners have already heard.	The conclusion does not succinctly address the research paper that was discussed.	The conclusion does not correlate with the presentation.	10
Future Directions and Finality	Clearly defines future directions both (1) from the paper and (2) your own thoughts. When the talk is over lets the audience know.	Clearly defines future directions from the paper.	Future directions are not clearly defined.	No future directions are provided.	5
Preparation and overall style	(1) Obviously knows the material, (2) Clearly prepared thoughts for each slide, (3) The talk flows with clear segues between slides (4) Speak clearly with your body, voice, and eyes directed towards your audience, (5) slides are attractive and easy to read, (6) Overall confident and assertive speaking style, (7) Timing is \pm 2 minutes of allocated time.	(1) Knows the material, (2) Clearly prepared thoughts for each slide, (3) The talk flows, however, some segues between slides are not clear (4) Speak clearly with your body, voice, and eyes directed towards your audience, (5) slides are attractive and easy to read, (6) Overall confident and assertive speaking style, (7) Timing is \pm 4 minutes of allocated time.	(1) Some knowledge of the material, (2) The talk flow, and segues between slides are not clear (3) Speak clearly, however, only some eye contact is maintained. (4) slides are not very clear, (5) Somewhat confident and assertive speaking style, (7) Timing is \pm 5 minutes of allocated time.	(1) inadequate knowledge of the material, (2) The talk does not flow, and segues between slides are lacking (4) Does not speak clearly and eye contact is not maintained. (5) slides are not very clear, (6) Lacks confident and assertive speaking style, (7) Timing is more than \pm 5 minutes of allocated time.	30
Total					100

Grading rubric for Laboratory Reports

Category	Exceeds expectations	Meet expectations	Below expectations	Does not meet expectations	Score
Title & Date	Includes descriptive title and date	Includes descriptive title and date	Non-descriptive title and date	(1) Non-descriptive title. (2) The title and/or date are not included.	5
Purpose of Experiment	Clearly and concisely states the purpose of the experiment. Engaging and thought provoking.	Clearly and concisely states the purpose of the experiment.	States the purpose of the experiment.	Incomplete statement or confusing.	25
Methods	The methods are written in such a way that, an independent researcher can read the methods and perform the experiment.	All methods are clearly written.	The methods are written in a way that an independent researcher will have difficulty in performing the experiment.	The methods are written in a way that an independent researcher will not be able to perform the experiment.	25
Results	(1) Tables/figures numbered consecutively in separate series. (2) Title is complete enough to be understood without referring to text. (3) Legend, headings, and units of measure are included. (4) Footnotes used as necessary to provide clarity with respect to: units of measure that do not fit in the heading, explanations of abbreviations and symbols, statistical significance of entries.	Tables/figures numbered consecutively in separate series Title is complete. Legend, headings, and units of measure are included. Footnotes used to provide clarity.	Tables/figures numbered, but not sequentially. Title is incomplete. Legend, headings, and units of measure are not fully included. Footnotes used but do not provide enough clarity	Tables/figures not numbered. No title. Legend, headings, and units of measure are not included. Footnotes are not used but are needed.	10
Discussion and Conclusion	In-depth discussion & elaboration in all sections of the paper. The conclusion is engaging and restates the thesis. Relates topic back to 'real world' applications.	In-depth discussion & elaboration in most sections of the paper. The conclusion restates the thesis.	Omission of pertinent content or content runs-on excessively. Quotations from others outweigh the writer's own ideas. The conclusion does not adequately restate the thesis.	Cursory discussion in all the sections of the paper or brief discussion in only a few sections. Incomplete statement or confusing.	5
References	(1)A uniform standard format (e.g. APA format). (2) More than three references.	(1)A uniform standard format (e.g. APA format). (2) Three references.	Two references.	One or no references.	30
Total					100

BIOL 4451 - BIOINFORMATICS

Syllabus Contract

Directions:

- First, read the syllabus.
- Second, read the statement below to confirm your personal reading and understanding of the contents of the syllabus.
- Third, provide confirmation by printing the document and providing your signature and date of completion in the space provided below.
- Last, submit/email this contract to me. Note that your grade for the first assignment will not be calculated until this contract is received.

I have received a copy of the syllabus. I have read and understand the policies of this course as stated in the syllabus.

Print Name _____

Signature _____

Date _____