

Texas A&M University Central Texas
BIOL 4451 – 110 CRN: 10013
BIOINFORMATICS
Spring 2018 Lecturer & Laboratory Syllabus

INSTRUCTOR AND CONTACT INFORMATION

Instructor: Dr. Chamindika Siriwardana

Office: Adjunct Office on the 4th Floor in Warrior Hall

Phone: 405-698-8652

Email: c.siriwardana@tamuct.edu

Office Hours: Tuesday (11:30 am – 1.30 pm), or by appointment.

Mode of instruction and course access: This course meets face to face and uses the A&M-Central Texas Canvas Learning Management System.

Student-instructor interaction: I will check my email daily during work hours (M-F, 8AM – 5PM), and will reply on the same day.

911 Cellular

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

911Cellular 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 911 Cellular through their myCT email account.

Connect at [911Cellular](https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management) [https://portal.publicsafetycloud.net/Texas-AM-Central/alert-management] to change where you receive your alerts or to opt out. By staying enrolled in 911Cellular, university officials can quickly pass on safety-related information, regardless of your location.

COURSE INFORMATION

Welcome to the Bioinformatics class!

Bioinformatics is a rapidly growing field that sits at the crossroads of biology and computer science. In its simplest form, bioinformatics represents the use of computers to analyze and interpret various types of biological data. People who use bioinformatics tend to come at it from either a computer science angle or a biological perspective (Important Note: people who are very talented in both computer science and biology are quite rare and valuable!). Computer scientists are interested in developing computer codes/software and algorithms to investigate complex biological data. Those coming more from the biology side tend to be primarily interested in using available algorithms, hopefully integrated into relatively user-friendly software, to help design better hypotheses, experiments, models, etc. for

future laboratory investigations. This class is primarily focused on the latter group - i.e., there are many very useful bioinformatics applications available online and lots to be learned by exploring these programs with data in hand.

In the Bioinformatics class we will study:

- a. how genomic sequence and its variations affect phenotypes.
- b. Focus on the information available from DNA sequencing projects, ranging from the sequences of individual genes to those of entire genomes.
- c. Learn analytical techniques that can be used to evaluate sequence data, and examples of their biological significance.

Course 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

Students will:

- a. be familiar with a variety of issues in cellular and molecular biology that can be investigated using computational approaches
- b. understand the biological and mathematical process involved in bioinformatics
- c. be able to use different bioinformatics software to address questions in cellular and molecular biology

Prerequisites:

BIOL 4470 and BIOL4471 must be completed before registering for BIOL 4451.

Meeting Times:

Lecture and labs meet in Warrior Hall room 314 and 413 respectively. Lectures meets on Tuesdays and Thursdays from 1:30 - 2:45 pm. Laboratory sessions are on Thursdays from 10:00 am – 1.00 pm.

Course Website/e-mail:

You can find an electronic version of your syllabus, including any current semester modifications, at the course Canvas site. We will use Canvas to post grades, readings, etc. 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.

Required Material:

Textbook:

Bioinformatics and Functional Genomics, by Jonathan Pevsner (3rd Edition).

<http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118581784.html>

You are not required to have the textbook for class. A copy is available at the library for you to read.

If you are very excited about Bioinformatics, you might also want to check these books out:

Practical Bioinformatics, by Michael Agostino

Phylogenetic Trees Made Easy, Barry G. Hall (4th Edition)

Computer:

All students must have their own computer or regular access to a computer. In addition to in class exercises, you will be asked to perform homework that will also require access to a computer. Nothing fancy is required - a standard, relatively modern laptop or desktop system will generally suffice (there are most definitely bioinformatics problems, such as working with sequencing data, that require fast computers and lots of memory, but we will steer clear of those for class).

Dropbox:

Each student must have a Dropbox account (<http://www.dropbox.com>) - the Dropbox “basic” account is free and gives you 2GB of space. Class folders will be shared, so please do not put any personal information in them.

Lab notebook:

Keeping an accurate, up-to-date, legible and informative notebook is a critical skill that will be required in any laboratory. It is expected that you bring your laboratory notebook with you to class every day and that the notebook is kept current. Rules and expectations regarding laboratory notebooks will be provided on Canvas and should be reviewed.

COURSE GRADING

Grading Scale:

A= 90% and above (450-500 points)

B= 80– 89.9% (400-449 points)

C= 70 – 79. 9% (350-399 points)

D= 60 – 69.9% (300-349 points)

F= 59.9% and Below (less than 299 points)

Available Points:

During the semester there is a total of 500 available points. Points are earned through a variety of assignments/assessments and the distribution of points can be found in the table below.

Assignment/Assessment	Quantity	Points (Each)	Points (Total)
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Quizzes	8	20	160
Portfolio	1	80	80
Midterm Presentation	1	80	80
Poster	1	80	80
Show and Tell	2	10	20
Final Exam	1	80	80
			Total= 500

Quizzes:

Instead of exams, we will have quizzes! We will have eight 10-15 min. quizzes at one to two-week intervals, which will be notified beforehand. 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.

Portfolio:

You are responsible for turning in one portfolio at the end of the semester. The portfolio will be worth 80 points and will include the characterization of your gene. Information about the portfolio is posted on Canvas. Portfolios will be submitted to the appropriate dropbox on Canvas (papers submitted via email will NOT be accepted). In addition to the electronic version a hardcopy must be submitted on the day of the final exam. The due date applies to both the electronic and hardcopy versions, and the portfolio will not be considered as submitted until both versions are available. Electronic versions are due at 5:00 pm on the assigned due date (see schedule). Plagiarism is a serious offense and any instances of plagiarism will result in action against the offending student(s).

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. Specific details, including a complete grading rubric is available on Canvas.

Posters:

A student poster session will be presented at the conclusion of the semester. The poster will be over your independent project. More information regarding the poster content, how posters will be graded, and other details will be provided before the posters are due.

Show and Tell:

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 group will have two "Show and Tell" sessions during the semester. On your assigned dates, your group 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 then share them with your group. When the group agrees that one of these findings is interesting and useful, you can work together to develop a 5-minute presentation for the whole class. Each member of the group must declare their contributions to the S/T assignment (i.e., everyone helps prepare presentation). All members are expected to be present and prepared to answer questions on your assigned date. I will give some more guidance on useful presentations soon, but, for now, start looking. NOTE: In the Portfolio assignment, everyone will be required to use one of the tools outlined at Show and Tell time by another group and clearly identify this in the final report. Thus, be sure to pay attention during S/T.

Final Exam:

The final exam will cover all subject matter learned during the semester. Further instructions on the exam will be given towards the end of the semester.

CLASS SCHEDULE

Jan.	16	Organization
	18	Lecture: Review Central Dogma Lab: Laboratory Safety Training, Introduction to YFG*, Literature Survey on YFG, Introduction to Citation Management Software
	23	Lecture: Introduction to Databases, Quiz 1
	25	Lecture: Retrieving Biological Data from Databases Lab: Retrieve biological information (ex. nucleic acid sequence, protein sequence, domains present in protein) for YFG
Feb.	30	Lecture: Introduction to BLAST,
	1	Lecture: BLAST Lab: BLAST analysis for YFG
	6	Lecture: Pairwise Alignments, Quiz 2
	8	Lecture: Pairwise Alignments Lab: Pairwise alignment for YFG
	13	Lecture: Multiple Sequence Alignment (MSA), Quiz 3
	15	Lecture: MSA Lab: Constructing a MSA for YFG
	20	Lecture: Phylogenetic Analysis
	22	Lecture: MEGA7

- Lab: Constructing a phylogenetic tree in MEGA7 for YFG
- Mar. 27 Lecture: Writing Circle, **S/T****, **Quiz 4**
 1 Lecture: Giving an Effective Presentation
 Lab: Portfolio and Presentation
- 6 **MIDTERM PAPER PRESENTATIONS**
 8 **MIDTERM PAPER PRESENTATIONS**
- 13 **Spring Break**
 15 **Spring Break**
- 20 Lecture: Genomes – Introduction, **Quiz 5**
 22 Lecture: Introduction to the bioinformatics software platform
 Geneious
 Lab: Analysis of YFG within Geneious
- 27 Lecture: Genomes – Viruses and Bacteria, **Quiz 6**
 29 Lecture: Cloning a gene
 Lab: In Silico Cloning of YFG
- Apr. 3 Lecture: Genomes – Fungi
 5 Lecture: Network Analysis and Gene Ontology (GO)
 Lab: Building a Network map for YFG and performing a GO analysis
- 10 Lecture: Genomes – Eukaryotes, **Quiz 7**
 12 Lecture: RNA-Seq
 Lab: Analysis of RNA-Seq data in Galaxy
- 24 Lecture: Genomes – Human Genome and Human Disease
 26 Lecture: Introduction to PERL and PYTHON
 Lab: Writing a script in PERL
- May 1 Discussion, **S/T****, **Quiz 8**
 3 **POSTER SESSION**

FINAL EXAM, Portfolio Due

***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

January 2018

January 2, (Tuesday) Winter Break Ends
January 2, (Tuesday) Priority Deadline for Admissions applications
January 5, (Friday) VA Certification Request Priority Deadline
January 11, (Thursday) Convocation
January 12, (Friday) Tuition and Fee payment deadline (16 week & 1st 8 week)
January 15, (Monday) Martin L. King Jr. Day
January 16, (Tuesday) ADD/DROP/LATE REGISTRATION BEGINS (\$25 fee assessed for late registrants) (16 week & 1st 8 week)
January 16, (Tuesday) Classes Begins
January 18, (Thursday) ADD/DROP/LATE REGISTRATION ENDS (16 week & 1st 8 week)
January 23, (Tuesday) Last day to drop 1st 8-week classes with no record
January 31, (Wednesday) Last day to drop 16 week classes with no record

February 2018

February 2, (Friday) Priority Deadline to Submit Graduation Application
February 9, (Friday) Last day to drop a 1st 8-week class with a Q or withdraw with a W
February 15, (Thursday) Last day to apply for Clinical Teaching
February 23, (Friday) Student End of Course Survey Opens (1st 8-Week Classes)

March 2018

March 1, (Thursday) Deadline to submit application to Teacher Education Program
March 2, (Thursday) Deadline to Submit Graduation Application for Ceremony Participation
March 9, (Friday) 1st 8 week classes end
March 9, (Friday) Deadline for Admissions applications
March 11, (Sunday) Student End of Course Survey Closes (1st 8-Week Classes)
March 12, (Monday) Spring Break Begins
March 12, (Monday) 1st 8-week grades from faculty due by 3pm
March 15, (Thursday) Tuition and Fee Payment Deadline (2nd 8-week classes)
March 16, (Friday) Spring Break Ends
March 19, (Monday) 2nd 8 week begins
March 19, (Monday) Summer Advising Starts
March 19, (Monday) Class Schedule Published
March 19, (Monday) ADD/DROP/LATE REGISTRATION BEGINS (\$25 fee assessed for late registrants) (2nd 8-week classes)
March 21, (Wednesday) ADD/DROP/LATE REGISTRATION ENDS (2nd 8-week classes)
March 27, (Tuesday) Last day to drop 2nd 8-week classes with no record
March 30, (Friday) Last day to drop a 16-week course with a Q or withdraw with a W

April 2018

April 1, (Sunday) GRE/GMAT scores due to Office of Graduate Studies
April 2, (Monday) Scholarship Deadline
April 2, (Monday) Registration begins

April 5, (Thursday) Priority Deadline for International Student Admission Applications

April 13, (Friday) Last day to drop a 2nd 8-week class with a Q or withdraw with a W*

April 13, (Friday) Deadline for submission of final committee-edited theses with committee approval signatures to Office of Graduate Studies

April 27, (Friday) Student End of Course Survey Opens (16 Week and 2nd 8-Week Classes)

May 2018

May 7-11, Finals Week

May 11, (Friday) Last day to file for Degree Conferral (Registrar's Office)(\$20 Late Application Fee applies)

May 11, (Friday) Spring Term Ends

May 11, (Friday) Last day to withdraw from the university (16 week and 2nd 8 week classes)

May 11, (Friday) Last day to apply for \$1000 Tuition Rebate for Spring graduation (5pm)

May 12, (Saturday) Commencement Ceremony Bell County Expo Center 7:00 p.m.

May 13, (Sunday) Student End of Course Survey Closes (16 Week and 2nd 8-Week Classes)

May 14, (Monday) Minimester begins

May 15, (Tuesday) Last Day to clear Thesis Office

May 5, (Tuesday) Final grades due from faculty by 3pm (16 week & 2nd 8 week)

May 21, (Monday) Priority Deadline for Admissions applications

May 25, (Friday) VA Certification Request Priority Deadline

May 28, (Monday) Memorial Day

TECHNOLOGY REQUIREMENTS AND SUPPORT

Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail 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.

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>]

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 a Drop Request Form [https://www.tamuct.edu/registrar/docs/Drop_Request_Form.pdf]. Professors 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, signed and returned. Once you return the signed 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, 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 reported 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.

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 Department 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 Department of Access and Inclusion at (254) 501-5831. Any information you provide is private and confidential and will be

treated as such. For more information please visit our Access & Inclusion webpage [<https://www.tamuct.edu/student-affairs/access-inclusion.html>].

Texas A&M University-Central Texas supports students who are pregnant and/or parenting. In accordance with requirements of Title IX and 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. For more information, please visit <https://www.tamuct.departments/index.php>. Students may also contact the institution's Title IX Coordinator. If you would like to read more about these requirements and guidelines 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 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, both on-campus and online. On-campus subjects tutored include Accounting, Advanced Math, Biology, Finance, Statistics, Mathematics, and Study Skills. Tutors are available at the Tutoring Center in Warrior Hall, Suite 111.

If you have a question regarding tutor schedules, need to schedule a tutoring session, are interested in becoming a tutor, or any other question, contact Academic Support Programs at 254-519-5796, or by emailing Dr. DeEadra Albert-Green at deeadra.albertgreen@tamuct.edu.

Chat live with a tutor 24/7 for almost any subject on your computer! Tutor.com is an online tutoring platform that enables A&M-Central Texas students to log-in and receive FREE online tutoring and writing support. This tool provides tutoring in over forty subject areas. Access Tutor.com through Canvas.

University Writing Center: Located in 416 Warrior Hall, the University Writing Center (UWC) at Texas A&M University-Central Texas is a free workspace open to all TAMUCT students from 10am-5pm Monday-Thursday with satellite hours in the University Library Monday-Thursday from 6:00-9:00pm. Students may arrange a one-on-one session with a trained and experienced writing tutor by visiting the UWC during normal operating hours (both half-hour and hour sessions are available) or by making an appointment via WOnline at [<https://tamuct.mywconline.com/>]. In addition, you can email Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu to schedule an online tutoring session. Tutors are prepared to help writers of all levels and abilities at any stage of the writing process.

While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. 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. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the University Writing Center is here to help!

If you have any questions about the University Writing Center, please do not hesitate to contact Dr. Bruce Bowles Jr. at bruce.bowles@tamuct.edu.

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 72,000 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 twenty-four 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 [<https://tamuct.libguides.com/>]

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/departments/compliance/titleix.php) [https://www.tamuct.edu/departments/compliance/titleix.php].

INSTRUCTOR 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 Blackboard website. I will distribute instructions on how to do this. 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. The exams 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.

Labs. A maximum of 3 absences will be allowed; additional absences in lab will result in an “F” for the entire course, regardless of excuse.

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 you will 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.

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 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 _____