Syllabus  
Semester: Fall 2019

Course name: BIO448/548, Introduction to Bioinformatics  
Hall – S134, 18:00-20:50 W

Office Hours: S236; TR 9:30 - 11:00 and W 15:30 - 17:30, or by appointment

Dr. Alexandra Martynova-Van Kley  
Professor, Department of BIOLOGY  
e-mail: avankley@sfasu.edu  
Phone: 468-2569

WELCOME TO BIO458/548: 3 semester hours. This course is designed to introduce you to the world of bioinformatics. Course objectives: to develop a basic understanding of the key concepts of bioinformatics. You will learn about the major repositories of biological databases today and how to retrieve and analyze DNA and protein sequences. You will learn the basics of DNA fingerprinting and understand genomic changes that can lead to common diseases. You will examine 3-dimensional structures of proteins and gain insight into principals of structure-based drug design. The class meets for 2 hours of lecture each week. Graduate students will be required to complete a small independent project upon completion of the course.

ATTENDANCE: You are expected to attend all lecture classes.

MISSING AN EXAM: will be permitted only by prior arrangement.

TEXTBOOK: Concepts in Bioinformatics and Genomics, by Jamil Momand et al. NO access code, NO clickers

GRADING CRITERIA:

Midterm & Final EXAMS - 2X40 pts; Quizzes - 20 pts; Independent project for grad. students - 50 pts; TOTAL - 100/150 pts; NO GRADE DISCUSSION over an e-mail.

CELL PHONES, LAPTOPS, AND OTHER ELECTRONIC DEVICES: All electronic devices MUST be turned off and PACKED AWAY during the lecture. Any use of an electronic device during a test will be considered cheating.

NO DTL; CLASS WEB-PAGE: http://martynova-vankley.com/bio448_bio548/

To open slides you need:  
user name: student  
password: biotech

Tentative SCHEDULE:

Aug28 Meeting with the class  
Sep4 History of Bioinformatics  
Sep11 Review of Molecular Biology  
Sep18 Sequence databases  
Sep25 Molecular evolution  
Oct2 Sequence alignment and BLAST  
Oct9 Review/Discussion/ Project Topics  
Oct16 Exam MIDTERM_part2  
Oct23 Proteins structure prediction  
Oct30 Phylogenetics  
Nov6 Phylogenetics  
Nov13 Genomics  
Nov20 Transcripts and protein expression analysis  
Nov27 Thanksgiving  
Dec4 Presentations  
Dec11 Exam Final
Program Learning Outcomes: PLO #1

Students Learning Outcomes: bio 448:
1. The student will demonstrate English communication skills written forms.
2. The student will demonstrate mastery of basic and advanced biotechnology methods.
3. The student will demonstrate the ability to operate basic and advanced computer-based analysis.
4. The student will demonstrate independent and critical thinking skills.

Students Learning Outcomes: bio 548:
1. The student will demonstrate English communication skills in both oral and written forms.
2. The student will demonstrate mastery of basic and advanced biotechnology methods.
3. The student will demonstrate the ability to operate basic and advanced computer-based analysis.
4. The student will demonstrate independent and critical thinking skills integrated with the ability to utilize multiple informational resources.

ACADEMIC HONESTY: All daily scored questions can be answered after discussion within your group, but you must submit your answer individually with your own clicker only. Use of any other person’s clicker is considered cheating. All exam work submitted for grading must be exclusively your own. Any dishonesty or cheating may result in a final score of zero (“F”) for the course. SFA Policy A–9.1 is summarized as: “Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism. Definition of Academic Dishonesty: Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.” (http://www.sfasu.edu/policies/academic_integrity.asp)

STUDENTS WITH DISABILITIES: To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468–3004 / 468–1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices/.

CLASSROOM EXPECTATIONS: Standard classroom decorum is expected. Please do not carry on a separate conversation that might be distracting to other students. If you have a cell phone or pager, please make sure it is either turned off or set to silent operation. Behavior that interferes with the learning environment will not be tolerated. If necessary, students violating these standards will be removed from the classroom. Additionally, please arrive in class a bit early as we will be starting promptly on time. WITHHELD GRADES, SEMESTER GRADES POLICY (SFA POLICY A–54). Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.