Tools for Genomic Analysis
Biology 503

Spring 2012, Jan. 23 – May 12, Online

Instructor:
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Week	Topic	Reading Assignment
Jan. 23-29	L5-Databases, NCBI http://www.ncbi.nlm.nih.gov/Entrez/tutor.html	http://blast.ncbi.nlm.nih.gov/Blast.cgi?CMD=Web&PAGE_TYPE=BlastDocs&DOC_TYPE=ProgSelectionGuide
Jan. 30-Feb. 5	Install DNA Master. Follow the DNA Master Annotation Guide tutorial using the Etude genome.	DNA Master Annotation Guide pages 1-100.
Feb. 6-12	Follow the DNA Master Annotation Guide tutorial using the Etude genome.	DNA Master Annotation Guide pages 101-120.
Feb. 13-19	Check your Etude annotation by completing the DNA Master Annotation Guide tutorial.	DNA Master Annotation Guide pages 157-211.
Feb. 20-26	Do your own annotation section assigned from the Wizard007 genome.	
Feb. 27-Mar. 4	Do your own annotation section assigned from the Wizard007 genome.	
Mar. 5-11	Spring Break	
Mar. 12-18	Do your own annotation section assigned from the Wizard007 genome. Prepare powerpoint presentation of your results. (A template will be provided).	
Mar. 19-25	Post a powerpoint presentation of your Wizard007 findings on the discussion board. View other student's annotations and ask/answer questions on the discussion board.	
Mar. 26-Apr. 1	Install CLC Main Workbench and begin tutorials.	CLC_Main_Workbench_User Manual pages 1–98. http://www.ncbi.nlm.nih.gov/About/primer/microarrays.html
Apr. 2-8	CLC Main Workbench tutorials, continued.	
Apr. 9-15	CLC Main Workbench tutorials, continued. Propose a project question to your instructor along with the approach that you will use to answer it.	
Apr. 16-22	Individual Project	
Apr. 23-29	Individual Project	
Apr. 30-May 6	Individual Project	
May7-11	Project Presentations	
May 12	All work must be submitted to your instructor.	

Prerequisites: Knowledge of DNA, protein, and gene expression.

Goal of the Course:
This course will explore the techniques and tools used to annotate and analyze genomic information. This course is intended to introduce students to the tools that can be used to answer genomic questions that may be posed as part of an online Biology 516 project. A genomics Biology 516 (3 hrs) will be offered in the summer of 2012.

Required Texts and Software.
DNA Master is a free genome annotation and analysis program. It will need to be downloaded and installed on the computer that you will be working on for this course. The links and instructions for installation of the software and the supporting documentation and example files can be found at http://phagesdb.org/DNAMaster/.

Download the following:
- DNA Master (follow the instructions in the Installation Guide)
- DNA Master Annotation Guide
- Etude (practice genome)

The CLC Main WorkBench is commercial software that can be downloaded and linked to our license server at WKU.

Additional reading:
"Understanding Bioinformatics" by Marketa Zvelebil and Jeremy O. Baum 2008, Garland Science, may be used as a good reference if you need a text to read (I have not asked the WKU bookstore to stock it, so you will need to order it online).

Course Design
Each week you will work through some of the tutorials and apply them to a bacteriophage genome that you will be assigned. You will present your findings online in a powerpoint presentation and will evaluate the results of other online student projects.

Participation
Students are expected to read the online material linked in the syllabus and found on Blackboard for the class. Questions can be submitted to the discussion area of Blackboard.

Projects
Evaluations will be done in the form of project completion and presentations.

Do Your Own Work and Use Proper Citation
All writings, programs and answers to questions throughout the course must be in your own words. **Do not share answers**.
If you want to quote either the text or an online source you must put " " around the quote and include the complete reference in ( ) after the sentence.
If you get ideas from a published source just include the reference in ( ) after the sentence describing the published material.
Failure to give proper credit (considered plagiarism), or extensive cutting/pasting from published sources or other students, will result in a grade of 0 for the assignment and will jeopardize you grade for the course.

Point Summary:

NCBI Database tutorial	10
Completion of Etude annotation	50
Completion of Wizard007 annotation	100
Presentation of Wizard007 annotation	30
Evaluation of other annotations	10
Completion of Main WorkBench tutorials	50

Definition of a project problem	10
Completion of the project problem	100
Presentation of the project problem	30
Evalution of the other projects	20
Total points	410

Grades: A = 90-100%, B = 80-89.99%, C = 70-79.99%, D = 60-69.99%, F = 0 - 59.99%.

Policies
Academic Integrity - It is expected that each student will do his/her own work at all times and contribute equitably in all group projects.

Academic Misconduct - Dishonesty, in any form (cheating on quizzes or exams, plagiarism, copying another's assignment answers, etc.) will result in a failing grade.

Disabilities: "Students with disabilities who require accommodations (academic adjustments and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services, Room 445, Potter Hall. The OFSDS telephone number is (270) 745-5004 V/TDD. Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the Office for Student Disability Services."

Withdrawals: If you wish to withdraw from the course you should do so by the dates mandated by the University. Be sure you are aware of these dates because credit for the course will not be changed after the university's designated time. You also cannot drop the class or Withdraw after the designated time. Be aware that it is YOUR responsibility to drop the class. Do not assume that I will do this for you.

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When you have finished reading this syllabus, you must send a signed email to your instructor (claire.Rinehart@wku.edu) indicating whether or not you will abide by this syllabus and the prescribed policies.
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