

Genetic Biotechnology - Biology 4840 - Spring 2012

Spring 2012

Dr. James Youngblom

Meeting Time- Mon. and Wed. 11:00-11:50, Friday 11:00-12:50, Naraghi Hall 334

Prerequisite- passing grade in BIOL 3350

Best way to contact me: Email- jyoungblom@csustan.edu Office phone- 667-3950

Office- Naraghi Hall 264 (I also spend considerable time in N124, N161, N332, & N334)

Office Hours- Mon.12:00-2:00, Wed. 12:00-1:00 or by appt.

Required Materials- “Gene Cloning and DNA Analysis” by T.A. Brown (2010)

“The Genome War” by James Shreeve- Ballantine Books, 2005

Equipment needed- Simple 3 ring binder to organize weekly handouts.

Dates to Remember-

Thursday Feb. 2- Last day to add a course

Wed. Feb. 22- Last day to drop a course

Fri. Mar. 30 - No classes, Cesar Chavez Day

Spring Break- No classes, Apr. 9-13

Fri. May 11, No afternoon classes, Warrior Day

Tues. May 15- last day of classes

BIOL 4840 provides CSU Stanislaus undergraduates the opportunity to contribute to original research involving a large-scale DNA sequencing projects from Washington University St. Louis Genome Sequencing Center. Students will analyze portions of chromosome 3 of *Drosophila erecta* and compare the data with to chromosomes of *D. melanogaster* to determine genome organization.

Exams/Quizzes/Reports-

Lab Reports (weeks 2-5)- 30 pts. possible

EXAM 1-Monday- Feb. 27- 60 pts.

Quiz #1- Friday, Mar. 9, 8 pts (The Genome War: Chapters 1 → 8)

Quiz #2- Friday, Mar. 16, 8 pts (The Genome War: Chapters 9→19)
Quiz #3- Friday, Mar. 23, 8 pts (The Genome War: Chapters 20→ end)
Journal Article Quiz- Friday Apr.20, 26 pts.
EXAM 2- Monday – Apr. 2- 60 pts.
Final Annotation report, Friday, Apr.6, 50 points
Oral Presentation, Friday May 4, 20 points
FINAL EXAM- Friday May 18 at 11:15- 100 pts.

The lectures:

The lectures in this course analyze molecular biotechnology. All course materials relate to the recombinant DNA revolution of the past 40 years. We will discuss the tools and materials necessary for gene cloning and analysis. In this course I will attempt to introduce you to thinking on a genomic scale. In particular we will discuss how our ability to sequence genomes gave rise to genomics, proteomics, transcriptomics, etc.

Friday Jan. 27- Chap. 1
Week of Jan. 30- Chap. 2
Week of Feb. 6- Chap. 3
Week of Feb. 13- Chap. 4
Week of Feb. 20- Chap. 5
Monday Feb. 27- Exam 1

Wed. Feb. 29, Fri. Feb. 2- Chap. 6
Week of Mar. 5- Chap. 7
Week of Mar. 12- Chap. 8
Week of Mar. 19- Chap. 9
Week of Mar. 26- Chap. 10
Monday Apr. 2- Exam 2

Week of Apr. 16- Chap. 11
Week of Apr. 23- Chap. 12
Week of Apr. 30- Chap. 13
Week of May 7- Chap. 14
Friday May 11 (Warrior Day), Mon. May. 14- Chap. 15

Final Exam Friday May 18 (11:15 a.m.)

The labs:

In the lab periods you will have an opportunity to conduct original research in genomics. The lab tools will be various examples of DNA sequence analysis software. Each pair of

students will be assigned a 40 - 59 kb file of unanalyzed *Drosophila* DNA. Students will annotate or genetically analyze this large piece of DNA.

- During the 2nd, 3rd, 4th, and 5th Fridays of the semester, the class will work together to explore several DNA analysis software tools. During this time, students will learn how to analyze genomic data. Homework from these labs is due at the start of the next lab.
- At the 6th lab meeting of the semester, each pair of students will be assigned a file of DNA from *Drosophila erecta* (40-59 kb).
- Independent project work will happen in class and outside of class.
- On **May 4** each pair of students will give 10 minute PowerPoint presentation, summarizing their Molecular Phylogeny lab work (April 20, 27).

Class information:

The website <http://blackboard.csustan.edu> will have a link for this class. On Blackboard, I will post journal articles pertaining to this class. The lectures for this class will be presented in PowerPoint. The PowerPoint lectures will also be available on-line at <http://blackboard.csustan.edu>.

The exam questions are taken from the lectures, handouts, assigned readings, & assigned chapters in Gene Cloning & DNA Analysis. Students are responsible for all of the information in chapters 1-15 in Gene Cloning & DNA Analysis. The exams are a combination of matching, true or false, multiple choice, short essay, and problem solving. The first 2 exams are not comprehensive. The final exam is comprehensive. No leaving the classroom during exams.

Cheating- Students caught cheating are automatically awarded an F. They are no longer allowed in class and a report is filed with the Dean of Student Affairs. All electronic devices (including phones) & headphones must be kept in purses or backpacks during the exams and quizzes. No exceptions. You can use a real calculator and not the calculator function on a cell phone or PDA.

Taping Policy- Audiotaping of classes is permitted only with prior permission of the instructor; videotaping is not permitted under any circumstances. Authorized tapes are for the personal use of the student, and may not be distributed to others without the permission of the instructor.

Guest Policy- Guests are permitted in class but only with prior permission of the instructor.

Late Assignments-

Make-up- If you know you can not be in class on the day of an exam, please see me beforehand so we can discuss your situation. In some circumstances, I will allow a make-up exam. If something comes up unexpectedly on the day of an exam, please call me. If you leave a message, leave a phone number and I will contact you to discuss your situation. Don't 'let it ride' and plan on discussing it with me later. If your situation warrants a make-up exam, then schedule your make-up exam ASAP. If I haven't heard from you by the time I am ready to hand back the exams, you get a 0.

Grading: I will grade on a curve using the +/- grading system. Students at or above 90% will be guaranteed an A- or higher, students at or above 80% will be guaranteed a B- or higher, students at or above 70% will be guaranteed a C- or higher, students at or above 60% will be guaranteed a D- or higher.

How to do well in this class-

1. **COME TO CLASS** and ask questions. Take good notes, Review and rewrite your notes.
2. Read the chapters accompanying each lecture. Highlight important sections.
3. Reread the chapters if necessary
4. Study the new terms- use the internet for extra help (there is unlimited amounts of information related to course topics online)
5. If material is unclear, see me during my office hours
6. Start early and work diligently on your lab projects. Keep good lab notes.