BIO 374 **GENETICS** FALL 2004

Instructor: Jeff Dahlseid, Ph.D. Class: MTWF 10:30-11:20
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E-mail: dahlseid@gustavus.edu Class URL: www.gustavus.edu/~dahlseid/BIO374/
Office hours: M 11:30, W 12:30, F 1:30
Text: Principles of Genetics, Snustad and Simmons, 3rd Edition, 2003, John Wiley & Sons

Course Description and Objectives:

Genetics is a fascinating and broad field of biology. It encompasses all aspects of the study of heredity, including classical, cytological, molecular/biochemical and population and quantitative genetic approaches. You have seen each of these approaches in the core courses for the biology major. Here we will build on this foundation. The central objectives for this course are that you will **broaden and deepen** knowledge and understanding of genetics and genetic principles, **develop** independent and critical thinking skills, and **strengthen** communication skills. I hope that you also come to appreciate how genetics and related fields influence and permeate one another. More specifically, my objectives are that you:

- add breadth and depth to your knowledge/understanding of genetics
- learn to *read* **and** *critically evaluate* the primary literature in genetics
- mature your ability to think independently in a field of experimental science
- increase proficiency in communicating scientific ideas clearly in oral discussion

Teaching approach:

I will primarily use class to present and discuss with you course material, to work problems, and to hold discussions of the primary literature (journal club). It is my hope that together we can cultivate an environment of active learning (*really!*). The content of genetics includes facts as well as principles and their application, which makes it challenging. Not only should you read the text material for each class meeting ahead of time and prepare your questions, but it will be important to work a sufficient number of problems to become proficient and confident in solving genetic problems and making genetic predictions. You are **required** to attend class, both physically and mentally. Doing so will allow you to take full advantage of the class opportunities to learn the material. Should you miss a class, you are responsible for *understanding* the material from class, including handouts, etc.

I welcome and encourage your participation in classroom learning. Genetics is a rigorous topic and I expect everyone to work hard, but if you are having problems with the course please let me know. I am here to help you learn.

Course Activities and Requirements:

- **Attendance/Participation:** Actively engaging the subject is an important component to learning genetics. Your participation (and attendance) is important to your own learning and that of the class. Thus, your participation will be assessed in this course.

- **Research Article Summaries:** Throughout the semester, you must use the search tools Medline or SciFinder and the Library (and ILL) to identify and obtain a copy of a research article on a biochemical topic (NOT a review) that interests you. You will be required to read the article and write a two-page summary addressing a series of provided questions. Due dates are below. See course web page for details.

- **Journal Club:** Reading, critically evaluating, discussing and applying the scientific literature are related and valuable skills. A common activity where you might employ all of these skills is known as a journal club. Although this activity takes many forms, in this class we will be meeting regularly (see schedule) to critically discuss pre-assigned papers of relevance to the course. Your full participation will require that you prepare in advance for these discussions by reading the papers carefully (and probably repeatedly). Also, for each meeting a group of you will prepare beyond that of others to be a resource for questions that might arise during the discussion, i.e. to serve as resident experts on that paper. The activity will be structured to promote participation by all. The class Journal Club is intended to give you experience with the journal club format as well as provide an opportunity for you to develop the skills of independent and critical thinking. Evaluation will be based on your participation and the quality of your contributions as an expert group member and as a participant. An additional handout describing the topics and details will follow (see course web page).

- **Exams:** During the semester you will be required to take four mid-term exams, the last of which will be your final exam. The mid-term exams will cover new material and concepts covered in class, suggested problems, and assigned readings through the test date. All exams will assess your learning of terms and principles ***AS WELL AS*** problem solving and critical thinking skills. They will include questions requiring recall (facts, names, etc.), short answers, and problem solving.

  Four mid-term exams will be given during class as indicated on the schedule, including the final exam on Dec. 20 **Exam attendance is mandatory**, and exams cannot be made up except for a crisis or emergency. I require that you talk with me personally in advance to arrange a make-up exam, if you are able to anticipate an acceptable conflict. If an emergency arises contact me by phone, voice-mail or e-mail, or, if you are unable to reach me, Kathy Scholl (x7333) in the Biology office or the Dean's office (x7526). IF I am properly notified AND your emergency is valid, a make-up exam will be arranged. All students must take the final exam as scheduled.

Grading breakdown::		
	Attendance/Participation	60
	Article summaries (3 @ 20 pts)	60
	Journal Club	100
	Exams (4 @ 100 pts)	400
	Total	620

- **Final grades** will be assigned according to a straight percentage scale. The following percentage scale will serve as a **guideline** for letter grade assignment:

90-100% = A
80 - 89% = B
70 - 79% = C
60 - 69% = D

Students with disabilities: Appropriate accommodations will be made for students with specific, documented disabilities of a physical, psychiatric or learning nature. Related information will be kept strictly confidential. Please contact either me or Laurie Bickett (x6286) in Academic Advising if this applies to you.

Feedback: I am very enthusiastic about being and becoming an outstanding educator, both for you and future students. I welcome constructive suggestions about how to improve class, my teaching, and the course. I expect to learn from you this semester how I might teach better. I invite you to discuss your suggestions with me in my office at any time.

Academic honesty: It is my expectation and policy that you will participate in this class in an honest and honorable way. This means that, while I encourage you to work together to learn genetics, the work you submit on behalf of an assignment must be your own. I will not tolerate academic dishonesty. Dishonesty includes plagiarism, which is presenting some else's ideas or words as your own. Thus, it is your responsibility in written work to credit sources from which you draw ideas and language (quotes are rare here) with proper referencing. Gustavus Adolphus College has an Honor Code, and you will be asked to print and sign the following statement at the end of major assignments: "On my honor, I pledge that I have not given, received, nor tolerated others' use of unauthorized aid in completing this work." Honorable work is assumed for ALL assignments. If you have questions about academic dishonesty, please see me. Documented dishonesty can result in failure of the course and will be reported to the Dean's office.

Class e-mail policy: I use e-mail to help manage the course and field questions about the material, so I require all that you use your e-mail **Gustavus** account. The advantages to this system include speed, avoided trips to Nobel Hall for simple questions, and a generally smoother running course. Here's the protocol. **When you have questions, e-mail them to me**. If your question is very specific, I will reply directly. If the question seems potentially interesting to the entire class, I will forward the question (anonymously) and my reply to the class. I will assume you do not object to sharing your question unless you specifically state so. I also encourage you to use the **f-bio-374** class alias to ask each other questions. As I may refer to e-mail questions in class and I use e-mail for general class announcements, **I encourage you to check your e-mail before class**. Campus rules for alias use apply and abuse will not be tolerated.

Note this syllabus and schedule are subject to change at the instructor's discretion.