SYLLABUS
MICROBIOLOGY
Biology 342  Spring 1999
lecture: MWF 11:45-12:45  GRUE 409

Instructor: Dr. Joan Braddock  E-mail: fjjfb@uaf.edu  Office: 410B Irving
Phone: Office: 474-7991, Lab: 474-6601, Home: 479-4071 (Before 10:00 p.m.)
Office Hours: MWF 9-11 or by appointment.

T.A.'s: Jeff Estensen, Sharon Richmond and John Lokvam


Lab Manual: Available from Biology and Wildlife (room 211 Irving I) for $10.00

Outline: This course covers the basics of microbial life with an emphasis on bacteria. We will consider the following questions:

What are microbes?
An overview of the microbial world.

How do microbes function as organisms?
Microbial growth, physiology and genetics.

How do microbes interact with the world around them?
Medical microbiology, biogeochemical cycling & biodegradation.

Grading: Evaluation of the lecture portion of the course will include three midterms, a final and one problem set. The final exam will be comprehensive. The exam format will include multiple choice questions, short answer questions and a few short problems or essays. The problem set will be handed out one week prior to being due. You may work in groups on solving the problems but the final write-up must be in your own words. The lab will be graded on two formal lab reports (the labs to be written up will be announced), two lab practicals and brief lab quizzes. The lab reports are to be written up in the format described in your lab manual. If you have any questions talk to your T.A. BEFORE THE LAB IS DUE. Your proficiency in basic laboratory skills will be assessed in two lab practical exams. For safety considerations it is extremely important that you come to lab prepared. Brief lab quizzes covering the material for that day's lab will be given promptly at the beginning of lab and will take about 5-10 minutes to complete. These quizzes can not be made up. There will be no quiz for the first lab.

The course grading will be broken down as follows:

Lecture (∝ 2/3 of final grade):
Midterms
Final
Problem sets
3 @ 13% each
1 @ 13% each
1 @ 13% each

Lab (∝ 1/3 of final grade):
Lab Reports
Lab Practicals
Lab Quizzes
2 @ 6% each
2 @ 7.5% each
8 @ 1% each

1. Attendance at labs and exams is required. It will generally not be possible to make up missed labs or exams. If you are going to have to miss something, talk to one of us beforehand so we can resolve the problem.

2. Missing three labs may be taken to be equal to dropping the lab portion of the class and will result in failing the class.
# APPROXIMATE SCHEDULE OF LECTURE TOPICS

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<td>Jan. 22</td>
<td>Techniques- Stains, Culturing</td>
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<td>Microbial Genetics: Genes, Mutations and DNA Repair</td>
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<td>Mar. 01</td>
<td>Microbial Genetics: Recombination, Plasmids</td>
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Mar. 08  EXAM II
Mar. 10  Recombinant DNA Technology  306-323
Mar. 12  Applications of Genetic Engineering  323-328

SPRING BREAK

Mar. 22  Viruses: General Properties, Cultivation  333-350
Mar. 24  Bacteriophage/Animal Viruses  354-366; 370-377; 384-386

Mar. 26  **Hand out Problem Set**
Diseases Causes by Viruses (except AIDS)  716-722; 730-741

Mar. 29  Bacterial Taxonomy  391-412
Mar. 31  Symbiosis: Commensalism/Mutualism
Normal Human Microbiota  547-558

Apr. 02  Symbiosis: Parasitism
Non-Specific Host Defense  562-583

Apr. 05  **Problem Set Due**
The Immune System:
Antigens and Antibodies  587-604

Apr. 07  The Immune System:
B-cell and T-cell Biology  607-620

Apr. 09  The Immune System:
Antigen-Antibody Reactions In Vivo/In Vitro
633-641 (parts)
641-643 (agglut.)
644-646 (ELISA)

Apr. 12  EXAM III

Apr. 14  Disorders of the Immune System
AIDS  621-629
722-730

Apr. 16  Microbial Diseases- Airborne and Arthropod  744-755 (selected diseases)

Apr. 19  Microbial Diseases- Direct Contact  755-766 (selected diseases)
777-779 (Chlamydia)

Apr. 21  Microbial Diseases- Foodborne/Waterborne  766-773

Apr. 23  **All Campus Day**

Apr. 26  Microbial Diseases- cont.

Apr. 28  Biogeochemical Cycling  814-819

Apr. 30  Fermented Foods/Spirits  892-901

May 03  Biodegradation  927-932

May 05:  **FINAL EXAM**: Wednesday 10:15 to 12:15