Fall 9-1-2001

MICB 450.01: Microbial Physiology

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MICROBIOLOGY 450-FALL 2001
Microbial Physiology-Lecture Schedule

Instructor: Jim Gannon. HS 416A or 515 Office Hr s. Make appointment.
Prerequisites: Micro. 300 and 6 hours of Chemistry/Biochemistry, OR Consent of Instructor
Text(s): Required: *Brock* Biology of Microorganisms, 9th Ed., Brock (2000),
Other Reference used in the course:
Biochemistry, current Text used in Biochm. 481 and 482
General Information: The dates and topics given in the course syllabus are tentative and may change at the discretion of the instructor.
Exams and Grading: Exams will be given at the scheduled time. Make-up exams will only be given in emergency situations and only if the instructor is appropriately notified. The final exam is comprehensive, but will include material from the last section of the course. The exam format is short answer/ short essay, fill-in, and some matching. Your final grade in the course will be based on total points from the following:

Exams, 2 x 100		200
Final Exam		100
Friday Quizzes*		40
Writing Assignments		60
(see special instructions)	Total	400

* There will be five Friday **quizzes** covering the current weeks material. Four of these will count; your lowest score out of the 5 will be dropped automatically. There are no make up quizzes. If you miss a quiz, this score will be the one dropped.

The letter grade breakdown will be approximately as follows:

% Total Points

	A	B	C	D
Undergrad.	90+	80-89	70-79	60-69
Graduate	92+	82-91	<82	

Incompletes will only be given for the reasons stated in the student handbook.
Graduate student exams and writing assignments are expected to reflect graduate level work and they will be graded accordingly (more detail, very clear and concise, etc.)
Only **letter grades** are given (no P or NP).
The instructor will ONLY approve **drops** after the published drop date (Oct-16) for very specific reasons. Examples include: 1) A documented illness or family emergency that

results in significant loss of class time 2) A documented significant change in work schedule.

Dates	***General Topics***	Brock
Sep-5	**Introduction**	
7-Sep – Sept. 26	**The comparative Physiology of microorganisms:** Cell Structure and function	2,3,12-15
	Overview of the structural and functional differences between microorganisms from a phylogenetic view- While the primary model used the eubacterium, this overview also includes the archaea and microeukaryotes.	
Sept.28	**Exam I**	
October 1-29	**Nutrition, Energetics, and Metabolism-** General principals of Energetics, catalysis, and electron carriers	4,15
	Principles of Fermentation/Respiration/ photosynthesis	
	Carbon Requirements, central precursors Embden Myerhoff, Entner Duodoroff, and Pentose Phosphate Pathway, the Krebs cycle. Physiological aspects of Nitrogen and Lipid Metabolism	
October 12	**Guest Lecture**	
October 31	**Exam II**	
Nov 2-9	**Autotrophy**: Photosynthetic mechanisms Chemoautolithotrophy and mixotrophy, the Calvin Benson Cycle, Other autotrophic mechanisms	4,13,15
Nov.12	**Holiday**	
Nov. 14-Dec 14	**Growth, Cell Division, Homeostasis**: Growth, cell division in gram negative and gram positive bacteria, Regulation, Signaling and behavior	
Nov 21-23	**Thanksgiving**	
Dec. 17	**Final Exam (1-3)**	

Microbial Physiology (Microbiology) 450

WRITING COMPONENT

SUBJECT: A specific physiological theme within the topic of Microbial physiology of sulfur compounds(no exceptions): Examples

1. Comparative measurements of microbial sulfur metabolism
2. Sulfur disproportionation in Thiobacillus species
3. Sulfide oxidation at low pH
4. The respiratory chain of *"a sulfur bacterium"*
5. The effects of "_____" on sulfate transport in "_____" ……

PAGE LENGTH: 6-8 dbl. spaced pages including literature cited., You must paginate. You must submit both a hard copy and an electronic copy.
DUE DATES: Title due September 24, Draft due October 22, Final paper due December 3.
GENERAL GRADING: The paper is worth 60 points, 30 points for the first draft and 30 points for the final work after corrections.
TITLE: Short succinct relevant statement encompassing the central theme. (5pts) Must be approved by September 24.
INTRODUCTION: The purpose of the introduction should be to supply the reader with the necessary information to understand and evaluate the concepts presented without needing to refer to additional work. (20)
DISCUSSION: The discussion presents and supports the central concepts. It discusses the theoretical and practical implications of the material presented. It provides conclusions that are supported by published work. (20)
LITERATURE CITED: Use formatting consistent with ASM journals (see January issue). A minimum of 10 citations of which 80% must be from primary sources. (5)
ABSTRACT (Summary) : There are several types of abstracts. This type is informative providing a succinct summary of what's presented and what conclusions are drawn. (max. 150 words). (10)

Writing assignment components due at the end of class period on the stated day. Late papers reduced by 10%/day