

RANGER COLLEGE
Course Syllabus
Fall 2010 – (Lectures: Wed. 6:30-9:15pm)

COURSE NUMBER AND TITLE: Biology 2421 - Microbiology for Science Majors

CREDIT HOURS : 4

SCHEDULED HOURS/WEEK: Lecture: 2.75 Lab: 2.75 Lec/Lab Combined: 5.5

Name of Instructor: Mr. Terry Johnson

Office Location: Early, TX: Room 102

Fall Office Hours: M-Th 10:45am-12:45pm (or by appt.)

Office Phone: 325-641-5726 x 205

E-Mail: tjohnson@rangercollege.edu

To facilitate communication in this course, students should check their email AND Blackboard often, at least once daily. Your instructor may use either to communicate important information or announcements that you don't want to miss!

Disclaimer: All schedules and procedures in this syllabus and this course are subject to change in the event of extenuating circumstances.

I. COURSE DESCRIPTION : A survey of microbial life, including morphology, physiology, and classification of microorganisms; emphasizes the medical and pathological importance of microbes. Laboratory emphasizes fundamental techniques in culturing and identifying microorganisms.

II. REQUIRED BACKGROUND / PREREQUISITES

Passing score on THEA Reading section or equivalent alternate test is recommended. BIOL 1408 required and one semester of chemistry highly recommended or approval of instructor.

III. TEXTBOOK(S); READINGS; MATERIALS

FOUNDATIONS IN MICROBIOLOGY 7th edition. Kathleen Park Talaro. McGraw Hill. 2009. (Not required, but highly recommended).

Microbiology Laboratory: Theory and Application Brief edition. Leboffe and Pierce. Morton Publishing Company. 2008. **(Required. Must be NEW, not used.)**

The decision to purchase a textbook is ultimately up to the student. However, reading the texts, observing figures and pictures included in the texts, and working the practice questions and activities within each chapter will improve memory and understanding of the material throughout the course, and consequently may help improve your grade. Although typically all exam questions come from the lecture material and notes, many of the practice questions in the textbook chapters are similar to the questions on the lecture exams. Though you are not required to purchase the textbook, and you have the option of using other resources available to supplement your study, purchasing the textbook as an additional reference is highly recommended.

IV. METHODS OF INSTRUCTION

1. Lectures (2.75 hours once weekly) in which the major concepts and theories in microbiology will be discussed.
2. Lecture notes will be provided through Blackboard. The student will be responsible for printing the appropriate lecture notes prior to each lecture.
3. Labs (2.75 hours once weekly) in which fundamental techniques in culturing and identifying of microorganisms will be emphasized.

V. EXEMPLARY EDUCATIONAL OBJECTIVES

NATURAL SCIENCES (N)

- N-1 to understand and apply methods and appropriate technology to the study of natural sciences;
- N-2 to recognize scientific and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing;
- N-3 to identify and recognize the differences among competing scientific theories;
- N-4 to demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies;
- N-5 to demonstrate knowledge of the interdependence of science and technology and their influence on, and contribution to, modern culture.

VI. BASIC INTELLECTUAL COMPETENCIES

B-1 Reading -the ability to analyze and interpret a variety of printed material.

B-2 Writing - the ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience.

B-3 Speaking - the ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion and audience.

B-4 Listening - the ability to analyze and interpret various forms of spoken communication.

B-5 Critical Thinking - the ability to apply both qualitative and quantitative skills analytically and creatively to subject matter to evaluate arguments and construct alternative strategies.

B-6 Computer Literacy - the ability to understand our technological society, use computer based technology in communication, solving problems and acquiring information.

VII. Course Objectives

Biology 2421 is designed to instruct students in methods that will result in a student obtaining a working knowledge in the following areas:

1. Main themes of microbiology, (N-1, N-2) (B-1, B-4, B-5)
2. Chemistry of microbiology, (N-1, N-2) (B-1, B-4, B-5)
3. Study methods and tools used in microbiology laboratories, (N-1, N-2) (B-1, B-4, B-5)
4. Vital characteristics and diversity of viral, prokaryotic, and eukaryotic microbes, (N-1, N-2) (B-1, B-4, B-5)

5. Microbial nutrition, ecology, growth, (N-1, N-2) (B-1, B-4, B-5)
6. Microbial metabolism and genetics, (N-1, N-2) (B-1, B-4, B-5)
7. Physical and chemical agents for microbial control, (N-1, N-2) (B-1, B-4, B-5)
8. The effects of drugs on microbes and hosts, (N-1, N-2) (B-1, B-4, B-5)
9. Microbe-Human interactions, (N-1, N-2) (B-1, B-4, B-5)
10. Host defenses and immunity, (N-1, N-2) (B-1, B-4, B-5)
11. Cocci and Bacilli of Medical Importance, (N-1, N-2) (B-1, B-4, B-5)

VIII. COURSE CALENDAR (see attachments)

IX. COURSE / CLASSROOM POLICIES

Regular and punctual attendance in all classes and labs is considered essential for optimum academic success. If the student has the equivalence of three weeks of unofficial absences... the instructor may drop the student from the course with a grade of F (Ranger College General Catalog 2010-2011). Students are expected to be seated by the beginning of the lecture period. Excessive tardies (6) may be considered as absences. Excessive unexcused absences (6) may result in a grade of I (incomplete) and may result in dismissal from the course with a grade of F.

It is your responsibility to inform the instructor of an excused absence. An absence is excused if you are excused by the Dean to participate in an authorized College activity. Any student who is disruptive to the class will be dismissed from the class and may be dismissed from the course. Any student found with unauthorized notes (cheat sheets, electronic devices, etc.) during an exam or copying from another student's exam will be subject to disciplinary action. Any student misconduct will be reported to the Dean of Student Services.

Please do not bring cell phones, pagers or similar devices to class or be sure they are turned off. No smoking or tobacco use is permitted in the building.

ADA Statement: Ranger College provides a variety of services for students with learning and/or physical disabilities. The student is responsible for making the initial contact with the Ranger College Counselor. It is advisable to make this contact **before** or **immediately** after the semester begins.

X. ASSESSMENT (Grading Procedure)

Lecture: The lecture portion of the course comprises 75% of your final grade in BIOL 2421. Exams will cover all material discussed since the last exam and will consist of one or more of the following:

- 1) fill-in-the-blank questions, 2) short answer questions or short essay,
- 3) matching, 4) multiple choice

Each question will be graded as correct or incorrect in accordance with information in the text and lectures. Exam grades will be taken as the number of points correct. Each exam will carry equal weight in the average, including the Final Exam.

Laboratory grades: The lab portion of the course comprises 25% of your final grade in BIOL 2421. Your final Lab grade will be the average of two written Lab Exams (25% each), a participation grade average (25%), and an Identifying Unknown Microbe Species average (25%). Further information including safety guidelines in the laboratory will be given by your lab instructor.

Calculation of final course grade:

The course grade will be computed as follows:

$$\begin{array}{rcl} \text{Average of lecture exams (including Final Exam)} & = & 3/4 \\ \text{Lab average} & = & 1/4 \\ \text{Total} & = & \text{Course Grade} \end{array}$$

How to calculate:

$$\frac{(\text{average of lecture exams} * 3) + \text{lab average}}{4} = \text{Course Grade}$$

Letter grades will be assigned as follows:

$$90-100 = A, \quad 80-89 = B, \quad 70-79 = C, \quad 60-69 = D, \quad \text{below } 60 = F$$

Extra Credit: Extra points may be added to your grades, but this is not guaranteed. The instructor reserves the right to give extra credit in the form of pop quizzes, rewards for attendance, assignments, bonus questions, or any other method deemed appropriate by the instructor.

Lecture Absences Policy: A student who misses any lecture is responsible for getting missed notes or assignments from the instructor or classmates. Make-up lecture exams are given only for exams missed due to an excused absence, and will be given later in the semester. You will not be allowed to make up any exams due to unexcused absences, and you will receive a grade of Zero for the missed exam. You are responsible for providing evidence to substantiate the reason for any absence. Evidence of a college-authorized absence will be required and authenticated prior to my scheduling a make-up lecture exam. You should notify me of your intent to take a make-up and provide substantiating evidence within one week of missing an exam. Make-up exams are normally more difficult than regular exams and may be in essay format. Students are strongly urged to not miss regularly scheduled exams. You are required to take the Final Exam and there is **NO MAKEUP** for the Final Exam (no exceptions).

Lab Absences Policy: For Microbiology labs, each student will be required to complete all assigned exercises for the lab, and receive a participation grade for the day. There is not enough time or supplies to set up lab activities and experiments twice to allow for make-ups of missed labs. Therefore, **Microbiology labs cannot be made up**. Students who miss a lab **MUST** provide documentation of a college-authorized excuse for any absence, or else receive a

grade of Zero for the lab exercises. For authorized excuses only, students will not be penalized for missing a lab and will not receive a grade of Zero for his/her participation grade.

XI. ADMISSIONS, EMPLOYMENT, AND PROGRAM POLICIES OF RANGER COLLEGE ARE NONDISCRIMINATORY IN REGARD TO RACE, CREED, COLOR, SEX, AGE, DISABILITY, AND NATIONAL ORIGIN.

XII. LABORATORY SAFETY

Students are expected to understand and comply with all environmental, health and safety procedures and protocols, and must agree to abide by all lab safety policies. Specific safety guidelines will be discussed at the beginning of each lab activity. Any student who is late and misses the safety training or instructions may not be allowed to participate in the lab activity. Any student who intentionally or thoughtlessly jeopardizes the safety of another student will be immediately dismissed from the lab, and may be withdrawn from the course.

Students should read the upcoming lab exercises **prior** to attending labs in order to be prepared for the required protocols and procedures, and enhance safety.

XIII. RECEIPT OF SYLLABUS (see attachments)

XIV. PRE-TEST REQUIRED

A “Pre-test” will be provided for you in Blackboard. Please take the pre-test during the first week of the course and return to me in hard copy form. This will not count towards your grade; the purpose of the pre-test is to assess overall class education levels in this course.

BIOLOGY 2421 - MICROBIOLOGY
FALL 2010 TENTATIVE LECTURE COURSE OUTLINE

<u>DATES</u>	<u>LECTURE TOPIC</u>	<u>CHAPTERS</u>
Aug. 25	Class orientation, introduction	Ch. 1
Aug. 25	The main themes of microbiology	Ch. 1
Sept. 1	The chemistry of microbiology	Ch. 2
Sept. 1, 8	Tools of the laboratory; study methods	Ch. 3
Sept. 8	Survey: Prokaryotes and Microbes	Ch. 4
Sept. 15	<u>Exam 1</u> (Ch. 1-3)	
Sept. 15	Survey: Eukaryotes and Microbes	Ch. 5
Sept. 22	Intro to Viruses	Ch. 6
Sept. 29	Microbial nutrition, ecology, growth	Ch. 7
Oct. 6	<u>Exam 2</u> (Ch. 4-6)	
Oct. 6	Microbial metabolism	Ch. 8
Oct. 13	Microbial genetics	Ch. 9
Oct. 20	Physical and chemical microbial control	Ch. 11
Oct. 27	<u>Exam 3</u> (Ch. 7-9)	
Oct. 27	Drugs, Microbes, Host	Ch. 12
Nov. 3	Microbe-Human interactions	Ch. 13
Nov. 10	Host defenses (nonspecific)	Ch. 14
Nov. 17	<u>Exam 4</u> (Ch. 11-13)	
Nov. 17, Dec. 1	Immunity (adaptive and specific)	Ch. 15
Dec. 8	Cocci and Bacilli of Medical Importance	Ch. 18-20
Dec. 15	<u>FINAL EXAM</u> (Not comprehensive: Ch. 14-15, 18-20)	

Receipt of Syllabus

I have received, and I understand the information in, the syllabus for Biology 2421 and I agree to abide by the stated policies. This includes use of electronic equipment in the class room, and the lab safety requirements. Also, I understand the method for calculating my grade.

Name: (print) _____ Date: _____
(sign) _____

1. Please list other biology or related courses you have taken in previous semesters.
2. What is your major, program, or interest? Why are you taking A & P ?
3. Is there anything in particular that you would like your instructor to know about you or your circumstances?
4. Do you have an advisor or sponsor, and if so, who?
5. What is your preferred email address? (this is the one that your instructor will use to communicate with you off campus)

6. What is your user name for Blackboard (I must have this in order to enroll you into this course in Blackboard)?
